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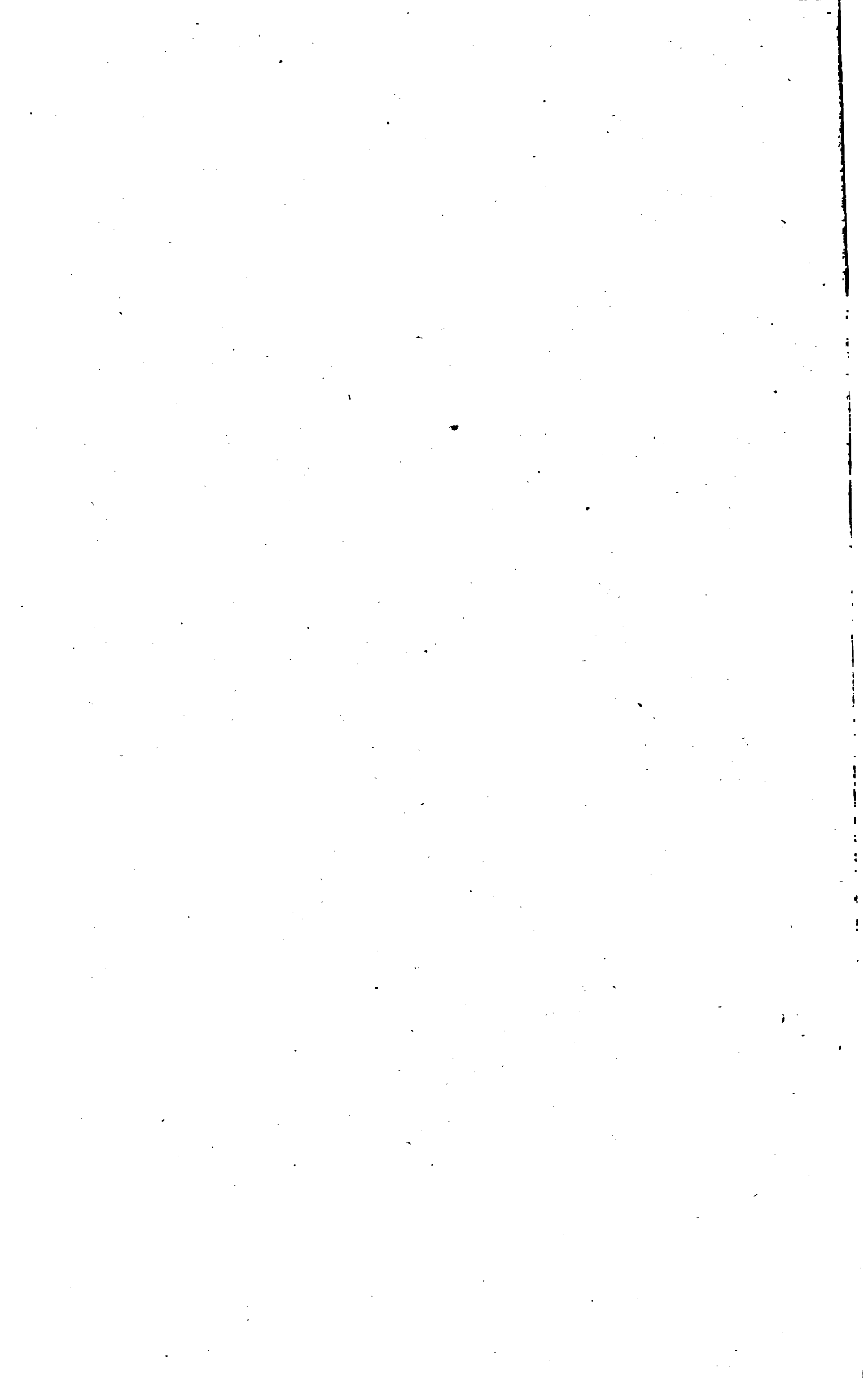


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# ACCOUNTS AND PAPERS:

SEVENTY-SEVEN VOLUMES.

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— (35J) —

RAILWAYS.

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Session

16 *January* 1902 — 18 *December* 1902.

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VOL. LXXXIX.

1902.

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# ACCOUNTS AND PAPERS:

1902.

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## SEVENTY-SEVEN VOLUMES:—CONTENTS OF THE THIRTY-FIFTH VOLUME.

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N.B.—*THE* Figures at the beginning of the line, correspond with the N° at the foot of each Paper; and the Figures at the end of the line, refer to the MS. Paging of the Volumes arranged for The House of Commons.

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### RAILWAYS:

#### Railway Accidents (General Report):

- ✓ [Cd. 1205.] General Report to the Board of Trade upon the Accidents that have occurred on the Railways of the United Kingdom during the Year 1901. p. 1

#### Railway Accidents:

- ✓ [Cd. 949.] Return of Accidents and Casualties as reported to the Board of Trade by the several Railway Companies in the United Kingdom during the nine months ending 30th September 1901, with Reports of the Inspecting Officers, Assistant-Inspecting Officers, and Sub-Inspectors of the Railway Department to the Board of Trade upon certain accidents which were inquired into. 33
- ✓ [Cd. 1101.] Returns of Accidents and Casualties as reported to the Board of Trade by the several Railway Companies in the United Kingdom during the Year 1901, with the Reports of the Inspecting Officers, Assistant-Inspecting Officers, and Sub-Inspectors of the Railway Department to the Board of Trade upon certain accidents which were inquired into. 169
- ✓ [Cd. 1232.] Similar Returns for the three months ending 31st March 1902. 383
- ✓ [Cd. 1308.] Similiar Returns for the Six months ending 30th June 1902. 541
- ✓ [Cd. 1374.] Similar Returns for the Nine months ending 30th September 1902. 665
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# GENERAL REPORT

TO THE BOARD OF TRADE

UPON THE

## A C C I D E N T S

THAT HAVE OCCURRED ON

THE

RAILWAYS OF THE UNITED KINGDOM

During the Year 1901.

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Presented to both Houses of Parliament by Command of His Majesty.

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LONDON:  
PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE,  
By DARLING & SON, LTD., 84-40, BACON STREET, E.

And to be purchased, either directly or through any Bookseller, from  
EYRE & SPOTTISWOODE, EAST HARDING STREET, FLEET STREET, E.C.,  
and 32, ABINGDON STREET, WESTMINSTER, S.W.;  
or OLIVER & BOYD, EDINBURGH;  
or E. PONSONBY, 116, GRAFTON STREET, DUBLIN.

1902.

[Cd. 1205.] Price 3d.

## TABLE OF CONTENTS

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REPORT ... ..	PAGE
TOTAL number of Passengers and Servants killed and injured, and the proportion of passengers to the number of passenger journeys ... ..	3
ACCIDENTS INQUIRED INTO BY INSPECTING OFFICERS ... ..	4
Due to Obstructions, Permanent Way, Works, &c. ... ..	6
Due to Failures of Machinery of trains, Boiler explosions, &c. ... ..	8
Due to excessive speed when entering stations, &c. ... ..	8
Collisions between following trains (outside fixed signals) ... ..	9
Collisions at junctions ... ..	10
Collisions within fixed signals ... ..	13
Collisions between trains travelling in opposite directions ... ..	17
Collisions at level crossings of two railways ... ..	17
Trains wrongly turned into Sidings or through Points ... ..	17
Accidents on inclines ... ..	17
Trains on fire ... ..	17
Miscellaneous Accidents ... ..	18
Summary of the Causes ... ..	20
ACCIDENTS GENERALLY TO SERVANTS OF RAILWAY COMPANIES AND CONTRACTORS ... ..	21
ACCIDENTS TO PERSONS OTHER THAN PASSENGERS OR SERVANTS OF THE RAILWAY COMPANIES ... ..	23
ABSOLUTE BLOCK AND INTERLOCKING SYSTEMS ... ..	23
LEVEL CROSSINGS ... ..	24
CONTINUOUS BRAKES ... ..	24
GENERAL REMARKS ... ..	25
APPENDIX No. 1.—Abstract of Accidents ... ..	27
No 2.—Classified List of Accidents ... ..	28



# REPORT, &c.

## TO THE SECRETARY, BOARD OF TRADE.

SIR,

I HAVE the honour to present to the Board of Trade a General Report on the accidents that have occurred in the working of the railways of the United Kingdom during the year 1901, founded on returns made by the Railway Companies under the Regulation of Railways Act (34 & 35 Vict. c. 78. s. 6), and on reports upon certain accidents made after inquiry by Officers of this Department.

### *Total number of Persons killed and injured from all Causes in the working of Railways.*

The following table shows the number of persons reported to the Board of Trade as having been killed and injured in the working of railways during the year, by accidents in which the running of trains or the movement of railway vehicles was concerned.

It must be remembered that under the head of injuries, in the case of passengers all injuries, however slight, are included ; while in the case of servants of the Companies only those accidents which prevent the injured servant from being employed for five hours on his ordinary work on any one of the three working days next after the accident are required to be reported.

	Killed.	Injured.	Reference to Tables in Accident Returns for 1901 (Cd. ), in which fuller particulars are given.
<b>PASSENGERS :</b>			
From accidents to trains, rolling stock, permanent way, &c.	—	476	See Table 2
By accidents from other causes, including accidents from their own want of caution or misconduct.	135	1,669	" " 3
<b>SERVANTS OF COMPANIES OR CONTRACTORS* :</b>			
From accidents to trains, rolling stock, permanent way, &c.	8	156	See Table 2
By accidents from other causes, including accidents from their own want of caution or misconduct.	503	4,087	" " 3
<b>OTHER PERSONS :</b>			
From accidents to trains, rolling stock, permanent way, &c.	3	5	See Table 2
While passing over railways at level crossings ...	55	26	" " 3
Trespassers ...	282	154	" " 3
Suicides and persons attempting suicide ...	144	17	" " 3
Persons on business at stations and sidings ...	17	122	" " 3
Miscellaneous (not included in any of the above) ...	24	28	" " 3
<b>Total</b> ...	<b>1,171</b>	<b>6,740</b>	

\* Of contractors' servants 20 were killed and 29 injured.

In addition to the above, the Companies have reported 106 persons killed and 11,635 injured from accidents that occurred on their premises but were not connected with the movement of railway vehicles. Thus, taking the total number of personal accidents

reported to the Board of Trade by the Railway Companies during the twelve months, there were 1,277 persons killed and 18,375 injured.

*Proportions (as compared with the number of Passenger journeys) of Passengers killed and injured by accidents in which the running of trains or the movement of railway vehicles was concerned.*

The total number of passenger-journeys, exclusive of journeys by season-ticket holders, was 1,172,395,900 for the year 1901, or 30,119,214 more than in the previous year. Calculated on these figures, the proportions of passengers killed and injured during the year 1901 were 1 in 8,684,414 killed, and 1 in 546,571 injured. In 1900, the proportions were 1 in 8,461,309 killed, and 1 in 470,848 injured.

*Proportion of Passengers killed and injured from Causes beyond their own control.*

The following statement shows the proportion of passengers reported as killed and injured from causes beyond their own control, in passenger-journeys, for the years 1874 to 1901, inclusive :—

Year.	Number of Passengers Killed and Injured from causes beyond their own control, from Accidents to Trains.		Number of Passenger Journeys (exclusive of Journeys by Season-ticket Holders).†	Proportion of Killed and Injured (from causes beyond their own control) to number carried.	
	Killed.	Injured.		Killed.	Injured.
1874	86	1,613	477,840,411	1 in 5,556,284	1 in 296,243
1875	17	1,212	506,975,234	1 in 29,882,073	1 in 418,296
1876	38	1,279	538,287,295	1 in 14,165,455	1 in 420,865
1877	11	664	551,593,654	1 in 50,144,876	1 in 830,713
1878	24	1,173	565,024,455	1 in 23,542,685	1 in 481,692
1879	75*	602	562,732,890	1 in 7,503,105	1 in 934,772
1880	29	904	603,885,025	1 in 20,823,586	1 in 668,013
1881	23	987	622,160,000	1 in 27,050,435	1 in 630,354
1882	18	803	654,838,295	1 in 36,379,905	1 in 815,489
1883	11	662	683,718,137	1 in 62,156,194	1 in 1,032,806
1884	31	864	694,991,860	1 in 22,419,092	1 in 804,388
1885	6	436	697,213,031	1 in 116,202,171	1 in 1,599,112
1886	8	615	725,584,390	1 in 90,698,049	1 in 1,179,812
1887	25	538	733,670,000	1 in 29,346,800	1 in 1,363,699
1888	11	594	742,499,164	1 in 67,530,000	1 in 1,250,555
1889	88†	1,016†	775,183,073	1 in 8,808,875	1 in 762,975
1890	18	496	817,744,046	1 in 45,430,224	1 in 1,648,677
1891	5	875	845,463,668	1 in 169,092,733	1 in 966,244
1892	21	601	864,435,388	1 in 41,163,589	1 in 1,438,328
1893	17	484	873,177,052	1 in 51,363,356	1 in 1,804,084
1894	16	347	911,412,926	1 in 56,963,307	1 in 2,626,550
1895	5	399	929,770,909	1 in 185,954,182	1 in 2,330,253
1896	5	388	980,339,433	1 in 196,067,887	1 in 2,526,648
1897	18	324	1,030,420,201	1 in 57,245,567	1 in 3,180,309
1898	25	632	1,062,911,116	1 in 42,516,445	1 in 1,681,821
1899	14	693	1,106,691,991	1 in 79,049,428	1 in 1,596,958
1900	16	863	1,142,276,686	1 in 71,392,293	1 in 1,323,611
1901	—	476	1,172,395,900	—	1 in 2,463,017

\* Including 73 persons lost in the Tay Bridge disaster.

† Including 80 killed and 262 injured in collision near Armagh.

‡ Number of season tickets issued in 1901=1,879,136.

#### INQUIRIES INTO ACCIDENTS.

COMPARATIVE STATEMENT of the NUMBER of TRAIN ACCIDENTS inquired into during the years 1882 to 1901 inclusive.

1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901
118	94	105	60	62	58	61	69	53	68	48	46	35	69	54	48	58	66	64	44

Of the 44 cases inquired into in 1901 only one was attended with fatal results to passengers, viz., the fire that occurred on the 23rd December at Dingle Station on the Liverpool Overhead Electric Railway. The two passengers who lost their lives, however, were not at the time in the train concerned, and had they followed the example of the other passengers and left the station when the fire broke out, instead of waiting to watch the efforts to extinguish the conflagration, they would have probably escaped without any injury. Four servants of the Company lost their lives in connection with this fire.

Five train accidents, which were inquired into, were attended with fatal results to Companies' servants, viz.:—

A collision between a goods train and the buffer stops at Tralee Station on the Great Southern and Western Railway, by which 3 servants of the Railway Company were killed and 2 were injured. (See page 9.)

An explosion in the firebox of an engine near Knottingley on the Lancashire and Yorkshire Railway, by which 2 servants of the Railway Company were killed. (See page 8.)

A collision between a passenger train and a goods train at Malden on the London and South Western Railway, by which 1 servant of the Railway Company was killed and 43 passengers and 2 servants were injured. (See page 10.)

A collision between a coal train and a goods train at Cross Gates on the North Eastern Railway, by which 1 servant of the Railway Company was killed. (See page 16.)

A collision between two passenger trains at Neville Hill on the North Eastern Railway, by which 1 servant of the Railway Company was killed and 6 passengers and 2 servants were injured. (See page 10.)

In addition to the above, a collision occurred at a level crossing over the London and South Western Railway near Chiswick between a goods engine and an omnibus by which 2 persons on the omnibus were killed and one was injured. (See page 19.)

The inquiries into train accidents, classified under certain heads, for the past year and for each of the preceding twelve years, are given in the following table for the purpose of comparison:—

Class of Accident.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
A. From engines or vehicles meeting with obstructions, or leaving the rails in consequence of obstructions, or from defects in connection with the permanent way or works ... ..	11	5	6	6	10	6	12	6	5	6	5	5	4
B. From boiler explosions, failures of axles, wheels, or tyres, or from other defects in the rolling stock ...	6	4	4	4	3	1	6	1	2	3	1	2	1
C. From trains entering stations at too great speed ...	12	2	15	10	8	4	7	9	4	6	6	5	6
D. From collisions between engines and trains following one another on the same line of rails, excepting at junctions, stations, or sidings ...	1	2	3	2	1	5	2	—	3	—	5	10	4

Class of Accident.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
E. From collisions at junctions	4	7	4	5	3	4	10	9	8	6	7	8	8
F. From collisions within fixed signals at stations or sidings	25	24	25	15	17	15	29	22	20	30	30	23	16
G. From collisions between engines or trains meeting in opposite directions...	2	2	3	—	—	—	1	—	—	1	1	—	—
H. From collisions at level-crossings of two railways...	—	—	—	—	—	—	—	1	—	—	—	—	—
I. From engines or trains being wrongly run or turned into sidings or otherwise, through facing-points	4	5	4	5	1	—	1	2	—	3	1	2	—
J. On inclines...	4	2	4	—	1	—	—	—	3	1	4	3	—
K. Trains on fire	—	—	—	—	—	—	—	—	—	—	—	—	1
L. Miscellaneous	—	—	—	1	2	—	1	4	3	2	6	6	4
Total ...	69	53	68	48	46	35	69	54	48	58	66	64	44

The number of passengers and servants of Companies killed and injured, in the train accidents inquired into during the year 1901, classified in the same way, are given in the following table :—

Class of Accident.	Number of Accidents.	Passengers and others.		Servants of the Company.	
		Killed.	Injured.	Killed.	Injured.
A. From engines or vehicles meeting with obstructions, or leaving the rails, in consequence of obstructions, or from defects in connection with the permanent way or works	4	—	17	—	1
B. From boiler explosions, failures of axles, wheels, or tyres, or from other defects in the rolling stock	1	—	—	2	—
C. From trains entering stations at too great speed	6	—	33	3	6
D. From collisions between engines and trains following one another on the same line of rails, excepting at junctions, stations, or sidings	4	—	71	2	5
E. From collisions at junctions	8	—	55	—	8
F. From collisions within fixed signals at stations or sidings	16	—	55	1	15
G. From collisions between engines or trains meeting in opposite directions	—	—	—	—	—
H. From collisions at level-crossings of two railways	—	—	—	—	—
I. From engines or trains being wrongly run or turned into sidings or otherwise, through facing-points	—	—	—	—	—
J. On inclines	—	—	—	—	—
K. Trains on fire	1	2	—	4	—
L. Miscellaneous	4	2	18	—	4
Total ...	44	4	249	12	39

#### TRAIN ACCIDENTS.

##### A.—Accidents from Engines and Vehicles meeting with Obstructions or leaving the Rails in consequence of Obstructions or from Defects in connection with the Permanent Way or Works.

Four accidents in this class, resulting in injury to 17 passengers and 1 servant, were investigated.

Two of these were caused by defects in the construction or maintenance of the road, and two by mistakes on the part of the Companies' servants, one of which, however, was contributed to by the failure of the mechanism provided for the purpose of preventing such a mistake.

#### FESTINIOG :

October 4th.—As a passenger train from Duffws (Festiniog) to Portmadoc was running between Ddualt and Tan-y-bwlch Stations, the whole train was derailed and ran along the ballast for about 60 yards before it was brought to a stand. No persons were injured by the accident.

The Inspecting Officer stated that although there was no direct evidence as to the cause of this accident, yet from inspection of the line between the scene of the accident and Tan-y-bwlch Station, a mile and a quarter in length, and of the sleepers that were removed from the curve after the accident, he had little doubt that the derailment was due to the faulty condition of the permanent way at the spot, and to the excess of super-elevation of the outer rail.

This mishap would, he hoped, cause those responsible for the condition of the line to take immediate steps to place the permanent way in the most perfect condition possible, this being necessary not only on account of the unusual risks due to the steep gradient and precipitous nature of the country, but also because the narrowness of the gauge reduced the bearing area of the sleepers on the ballast. Also additional superintendence of the platelayers seemed most necessary.

The Inspecting Officer was informed that the Company had decided, before the accident happened, to carry out improvements in the permanent way, and in the superintendence of the platelayers and of the repairs to the permanent way, and he hoped that no time would be lost in completing these arrangements.

#### GREAT NORTHERN :

March 11th.—The two hindmost carriages of a Lancashire and Yorkshire Company's passenger train from Leeds to Liverpool left the rails just after passing over the facing points leading from the up main line to the North Eastern line near Leeds "B" signal-box. Three passengers complained of injury.

The Inspecting Officer found that this accident was due to the action of the signalman who, in his anxiety to get the traffic through without delay, did not wait until the whole of the Lancashire and Yorkshire train had cleared the points before putting his inner home signal back to danger, as he should have done, and then set the facing points for the North Eastern road before the rear bogie of the last carriage passed over them.

This man was to blame for not observing Rule 61 which prohibits the placing at danger of such a signal until the train has passed it or been brought to a stand (especially as the Great Northern Railway Company lay great stress on it, and have a printed copy hanging up in every signal-box), but it must be said that the mechanism provided especially to prevent him splitting the train failed to fulfil its object.

From trials made after the accident it was found that the locking-bar could be pulled over when Lancashire and Yorkshire bogie carriages were passing over the points in question, while it could not be pulled over when Great Northern six-wheeled carriages were passing.

This accident showed the unsatisfactory nature of an outside locking-bar, especially when situated like the one in question, viz., outside the inside rail at the end of a fairly sharp curve. The carriages are thrown away from the inner rail, and although the locking-bar was as close as possible to the rail yet it failed to touch the wheels of the passing carriages.

The Inspecting Officer stated that the Great Northern Company were taking steps by altering the nature of the

locking-bar at the points in question to prevent a repetition of such an accident.

#### MIDLAND :

July 6th.—As a passenger train from Sheffield to Morecambe was approaching Wath Road Junction, Swinton, on the down fast road, it left the rails at a set of disused facing points. Seven passengers complained of shock, &c., but none were seriously injured.

The Inspecting Officer found that this accident was due to the action of a ganger of platelayers engaged in certain work proceeding at the spot, who, by a misunderstanding, loosened the disused switch without instructions and contrary to regulations, and did not take the precautions laid down by the Company's Regulations for the protection of trains after he had done so.

The Inspecting Officer pointed out that the want of intelligence this man displayed on this occasion emphasized the importance of exact and definite orders and the necessity for strict discipline in all operations in connection with running roads.

#### NORTH EASTERN :

December 3rd.—When a down express passenger train from Leeds to Newcastle had reached a point about 400 yards from Bardsey Station, the whole of the train, with the exception of the engine, left the rails. The guard was shaken and bruised, and seven passengers subsequently complained of injuries.

This accident occurred on a right-handed curve of about 25 chains radius, and the train was derailed to the right of the line or inside of the curve.

It appeared that, while the curvature was for the most part fairly regular, there were two adjacent lengths where the radii were only 7 chains and 7.3 chains respectively. This sharp curve commenced at a point 83 yards on the up side of the point where the first marks due to the derailment were found. The fact of the first marks of the derailment occurring almost immediately after the train had passed over this sharp curve seemed to afford strong grounds for concluding that the derailment was connected with it.

The Inspecting Officer thought that there could be little doubt that either the tender or the leading vehicle of the train was derailed near this point causing the eventual derailment of the whole train, and that the ultimate cause of this derailment was the sharp piece of curve over which the train passed just before reaching this point. Of the two vehicles, it appears more probable that, on account of its rigid wheel base, it was with the tender that the derailment in the first instance occurred. The fact of the derailment not occurring on the outside of the curve, as would naturally have been expected, was probably due to the presence of the check rail, which prevented the train leaving the rails on that side of the curve.

He added, that while the Company had doubtless already taken steps to have the irregularities in the curve attended to, this appeared to be a point on the line which required careful watching. Further, with a view of ensuring that the speed of down trains was reduced to 25 miles an hour before reaching the reverse curves, he recommended that the speed restriction board should be moved back half a mile to the point selected when this line was inspected; and that the Company should also take steps to ensure, as far as practicable, that this speed was not exceeded until the alterations, which it was understood were to be made to these reverse curves, were carried out.

*B.—Accidents from Boiler Explosions, Failures of Axles, Wheels, or Tyres, or from other Defects in Rolling Stock.*

One accident in this class, resulting in the death of 2 servants, was investigated. This was caused by an explosion in the firebox of an engine.

**LANCASHIRE AND YORKSHIRE :**

March 11th.—While a special coal train for Goole was running between Knottingley and Sudforth Lane an explosion occurred in the firebox of the engine. The driver and fireman were killed.

The Inspecting Officer found that the chief cause of the explosion was the use of an unsuitable description of material for the firebox stays; the defects would not, however, have been so numerous, nor would they have developed so rapidly had not the stays been too rigid, and had not the sides of the firebox been worked at a very high temperature, the cause of the latter being the narrow water spaces, and consequent defective circulation in the boiler, assisted, no doubt, by the use of bad feed water.

He considered that the hydraulic test adopted by the Company was unusually low, and should be considerably increased and applied more frequently.

It was satisfactory to be able to state that all stays made of the material considered by the Inspecting Officer to be unsuitable that were found defective were being replaced by copper stays as a temporary expedient, to tide over the period during which the Company were conducting a careful series of experiments regarding alloy stays.

The reports as to leaky stays and tubes regarding this boiler were very numerous for some time previous to the explosion, and in one or two cases repairs had not been executed when leakages were reported before the engine was apparently put to work again. This was unsatisfactory, and the Inspecting Officer considered that an explanation should always be entered in the Engine-men's Report Book, giving the reason why any defect reported is not repaired at once on the return of the engine to the shed. He also thought that the locomotive shed foreman, or his representative, should sign his name at the bottom of each page of this report book to show that he had taken cognizance of all defects reported.

He further considered that in a case like that of this engine, when a boiler is reported leaking day after day for a considerable period, some report should be sent to headquarters from the running shed, calling attention to the fact, so that steps might be taken to thoroughly examine the boiler.

No doubt the men at the shed did their best to remedy the defects reported, but the renewed entries showed that they were not successful, and that several of the defective stays were not replaced. These very large and hardworked boilers evidently required very careful and frequent inspection, and the Inspecting Officer trusted that the Company would take steps to ensure this in the future.

*C.—Accidents from Trains entering Stations at too great Speed.*

Six accidents in this class, causing the death of 3 servants and injury to 33 passengers and 6 servants, were inquired into.

Four of these accidents were due to mistakes and miscalculations of speed by engine-drivers, one to neglect of a rule for which the Company's officials were responsible, and in one case owing to the death of the enginemen and guard it was impossible to ascertain the precise causes.

**GREAT EASTERN :—**

May 21st.—As a mixed train was entering the dock line at Bentley Station, the driver failed to stop it before it came into contact with the buffer stops at the end of that line. The speed of the train at the time of the collision was small, so very little damage was done thereby, but five passengers complained of slight personal injuries.

The Inspecting Officer found that there could be no doubt that this accident was mainly due to the fact that the brake was not applied on the rear brake van of the train when running down the incline into Bentley Station.

The train was a mixed one; the front portion of it, which consisted of an engine, tender, two carriages and a third-class brake, was provided with the Westinghouse brake, whilst the rear portion, which consisted of eight waggons, was provided with a ten-ton brake van. The train was therefore provided with considerable brake power.

The driver applied the Westinghouse brake when about 80 yards from the buffer stops, but it does not appear to have acted properly, and he received no assistance from the rear brake-van in checking the speed, as the guard was riding in the front passenger brake-van for the purpose of seeing after the parcels therein. It was clear that it was customary for this mixed train to run into Bentley Station without a guard in the rear van.

The Inspecting Officer pointed out that the approach to Bentley Station is on a falling gradient; the driver possibly did not make the most judicious use of his own brake power, and not receiving any assistance

from the rear brake-van, in checking the speed of the train the collision occurred.

The Board of Trade requirement on the subject of mixed trains is that the unbraked vehicles shall be conveyed behind the passenger vehicles with a brake van to every ten waggons, the effect of which rule is of course entirely neutralized if there is no guard in the brake-van; and the Company's rule distinctly lays down that the brake-van at the rear of a mixed train is to have a guard in charge.

The responsibility for this accident rested, in the Inspecting Officer's opinion, on the officials of the Company who were responsible for having allowed this rule to have been uniformly neglected, or, at all events, for having omitted to ascertain that it was being duly complied with.

December 28th.—As a passenger train from Norwich to Cromer was entering Cromer Station, the driver failed to bring it to a stand before it came into collision with the buffer-stops at the termination of the arrival platform line. The speed at the time of the collision was low. Seven passengers were reported to have received slight personal injuries.

The Inspecting Officer found that this collision was due to the engine driver not having got his train sufficiently under control when approaching Cromer Station, and that it seemed probable that this result was due to his having allowed his train to travel at too high a rate of speed from Gunton. The responsibility for this collision must, therefore, rest solely on him.



## GREAT NORTHERN :

March 15th.—A special troop train, conveying troops from Edinburgh to Albert Docks, came into collision with an up coal train which was crossing from the up goods to the up main line just beyond the up main line platform starting signal at Peterborough Station. One of the soldiers was slightly injured.

The Inspecting Officer was of opinion that the driver of the troop train had not sufficiently taken into account the weight of his train, the state of the rails, and the falling gradient, and was approaching Peterborough Station, at which he was booked to stop, at too high a speed, and so overran the starting signal.

The driver attributed his overrunning this signal to defective brakes, but the Inspecting Officer pointed out that he had not tested his brake to see if he had his train under proper control from the time he left Doncaster, over two hours previously, as laid down by General Regulations for Working the Vacuum Automatic Brake, Section 5 (f), and the same rule of the Great Northern Railway, which says that engine drivers must test the brake "before descending steep inclines and "before passing the distant signal of any principal "station," &c., "and the speed of the train must be "reduced by it."

If the brakes did not control his train sufficiently, he should have ascertained it long before nearing Peterborough, and he was to blame for not having tested them sooner.

## GREAT SOUTHERN AND WESTERN (IRELAND) :

April 24th.—As a mail goods train from Mallow to Tralee, consisting of an engine, tender, 15 waggons, and two brake vans, was entering Tralee Station, the driver failed to stop the train at the platform, and it dashed into the buffer stops at the end of No. 1 bay line at a speed which is estimated at between 25 and 30 miles an hour.

The driver of the train and the front guard were killed instantaneously, and the fireman received injuries to which he succumbed in the course of a few hours. The only other occupants of the train, viz., the rear guard and a railway employé who was travelling with him, were but slightly injured.

The Inspecting Officer found that it was impossible to ascertain for certain what were the precise causes which led to this accident, as the only officials of the train who could have thrown a definite light on the subject, viz., the driver, fireman, and front guard, were all killed in the collision.

He considered that the accident must be attributed to one of two causes: either the apparatus with which the train was provided for the purpose of checking its speed failed to act, or the driver, fireman, and front guard failed to make proper use of it when approaching Tralee Station.

There was no definite evidence that the brakes were defective, and the Inspecting Officer thought it most improbable that the accident was caused by inefficient brakes, but he considered that it seemed much more probable that for some reason the driver and fireman failed to realize how near they were to Tralee, and consequently did not attempt to check the speed of the train till too late.

## LONDON AND NORTH WESTERN AND MIDLAND JOINT :

September 5th.—As a Midland passenger train from Derby to Birmingham was entering New Street Station, it ran past the platform stop signal at danger and came into collision with the rear of a Midland passenger train from Evesham to Birmingham, which was standing in the station on No. 6 platform line.

The passengers by the latter train had fortunately all left it, but three of the Company's servants, who were engaged in unloading luggage from the rear brake-van, were severely injured, and the driver was slightly bruised. None of the passengers in the Derby train were seriously injured, but five complaints were received of slight personal injuries.

The Inspecting Officer considered that there could be little doubt that the speed of the Derby train when entering the station was too high, and that the driver had consequently not got his train sufficiently under control to be able to stop it at the platform stop signal. He probably did not make sufficient allowance for the fact that the train was a heavy one. The responsibility for the collision must, therefore, rest solely on him.

## MIDLAND :

May 17th.—A passenger train from Luton to St. Pancras ran into a covered carriage truck, which was standing on No. 6 platform line in St. Pancras Station, close to the terminal buffer stop. About 15 passengers complained at the time of having suffered ill effects from the force of the collision, but none were very seriously injured.

The Inspecting Officer found that the engine driver was responsible for this collision in entering the station at too high a rate of speed, and by failing to make proper use of the automatic brake.

*D.—Collisions between Engines and Trains following one another on the same Line of Rails, not including those at Junctions, Stations, and Sidings.*

Four accidents of this class, which caused the death of 2 servants and injury to 71 passengers and 5 servants, were inquired into.

All these accidents were caused or contributed to by mistakes or negligence on the part of servants of the Railway Companies. In three cases, however, fog was prevailing at the time the accidents happened.

In one case the Inspecting Officer drew attention to the length of time the man in fault had been on duty when the accident happened.

## GREAT SOUTHERN AND WESTERN (IRELAND) :

February 1st.—When a down passenger train from Limerick to Tralee was about three-quarters of a mile from Abbeyfeale Station, it ran into a light engine which had been running in the same direction, but had been brought to a standstill through want of steam. Five passengers in the train complained of injuries.

The Inspecting Officer found that this accident was clearly due to the fact of the passenger train being allowed, in direct contravention of block working rules, to enter the Devon Road and Abbeyfeale block section while the light engine was still in it.

The light engine had been sent into the section without the usual train-staff ticket, owing to the key of the box in which the tickets were kept being broken, and owing

to a mistake of the signalmen the "line-clear" signal was either wrongly given or it was wrongly thought that it had been given for the passenger train.

The Inspecting Officer was of opinion that the block-working of this portion of the line had been carried out for some time past in an irregular and unsafe manner. Although special instruments had been provided to guard against the possibility of mistakes being made, the signalmen had not availed themselves of them, and there was no doubt that the recording portions of the block instruments were not made use of on this occasion, and that it was to the neglect of their use that this accident was due.

It was only fair to the Great Southern and Western Company to point out that the working of this line had only been in their charge since the 1st January, 1901,

but the manner in which the staff employed on it carried out their duties called for their earnest attention.

The driver in charge of the light engine was very much to blame for having neglected to carry out the rules for the protection of his engine when it broke down. He had ample time to have sent his fireman back to place detonators on the line, and his neglect to do so until he saw the passenger train approaching rendered him largely responsible for the collision.

It was unsatisfactory that the cause of the repeated failures of this engine on the day in question could not be ascertained, but the locomotive staff reported that the engine had been thoroughly examined, and that no defect could be found in it to account for them. They might, however, have been due to some mismanagement on the part of the driver or fireman.

#### LONDON AND SOUTH WESTERN :

November 23rd.—While a goods train was slowly drawing past the up home signal on the Kingston line, near Malden Station, a following passenger train entered the same block section, and dashed into the rear of the goods train. A thick fog was prevailing at the time.

The guard of the goods train was so severely injured by the collision that he died shortly afterwards. In addition, the two guards of the passenger train and 43 passengers suffered from contusion or complained of the effects of shock.

The Inspecting Officer found that the driver of the passenger train was mainly responsible for this collision, in that he passed a stop signal without ascertaining whether its position warranted his doing so, and, further, was not displaying the special caution called for in foggy weather by the Company's instructions, as regarded the speed of his train, after passing the distant signal for Malden Junction. He considered that the fireman was responsible in a minor degree.

Their good characters, and the suddenness with which the dense fog came on, were extenuating points in their favour.

#### NORTH EASTERN :

December 21st.—As an express passenger train from York to Leeds was standing at the Neville Hill home signal it was run into from the rear by a passenger train from Bridlington to Leeds.

The end of the rear brake-van of the York train was completely smashed in, and the guard who was riding in it received injuries to which he shortly succumbed.

The driver of the Bridlington train was injured; the guard was slightly injured; and six complaints were received from passengers of personal injuries.

The Inspecting Officer found that the responsibility for this collision rested with the driver of the Bridlington train, who passed the Waterloo Junction inner home signal at danger. He stated that he could not see the signal owing to the fog, but the Inspecting Officer considered that if he had been keeping a careful lookout he could have seen that the inner home signal was at danger; and even if, as he stated, he was unable to see it, he should certainly have treated it as a danger signal and brought his train to a stand accordingly.

#### WEST LONDON EXTENSION :

December 23rd.—As a London and North Western Railway Company's down goods train from Hither Green to Willesden was coming to a stand at the down home signal at Chelsea Station, it was run into in rear by a London and South Western Railway Company's down passenger train from Waterloo to Richmond. The guard of the goods train was badly bruised and injured, and 17 passengers complained of shock. The atmosphere was foggy at the time.

The Inspecting Officer found that the cause of this collision was a mistake on the part of the signalman at Chelsea Dock Junction cabin, who accepted the goods train from Battersea, and then, shortly afterwards, forgot all about the fact that it was travelling in the block section, and was approaching his down home signal. Although, therefore, his block instrument indicated "Train on line," he accepted the following passenger train. The driver of the passenger train was accordingly authorised by signal at Battersea to enter the next section, and, owing to the fog, did not see the tail lights of the goods train in front of him until too late to avert the collision.

It was difficult to see what excuse could be made for such culpable forgetfulness, unless it were to be found in the fact that this man had been on duty about 13 hours at the time of the occurrence, and had more onerous work to do than he could efficiently perform.

The accident occurred about 7 a.m. on Monday morning and the signalman had come on duty at 6 p.m. on the Sunday evening, and the Inspecting Officer considered that, taking into consideration the work and responsibility at Chelsea Dock Junction, it was clear that a signalman's tour of duty at that place on Sunday should not be permitted to exceed 12 hours.

In conclusion he pointed out that the question whether the signalmen on this joint line were able to efficiently perform all their duties without further assistance, and the lack of discipline which was evidenced by the non-existence of rosters of duty for signalmen, by unauthorised alterations in the hours of duty, &c., were points which called for the serious consideration of the Managing Committee.

### E.—Collisions at Junctions.

Eight accidents of this class, which caused injury to 55 passengers and 8 servants, were inquired into.

These accidents were all due to mistakes or negligence on the part of the servants of the Railway Companies, but two of them were contributed to by foggy weather, and one by an unsatisfactory system of working.

#### GLASGOW AND SOUTH WESTERN :

August 6th.—As a passenger train from Pollokshaws to Glasgow was crossing the junction at Gorbals, it was run into by the 6.15 p.m. passenger train from Glasgow to Girvan. The guard of the Pollokshaws train was injured.

The Inspecting Officer found that this accident was due to the driver of the Glasgow to Girvan train passing the up main line home signal at Gorbals Junction box while it was at danger, and fouling the crossing connection from the down canal line to the down main line, over which the Pollokshaws train was passing at the time.

But the system of working the traffic at Gorbals Junction cabin was also a contributory cause of the

accident, as it was a dangerous practice to allow a train to come up to a signal at danger, by over-running which for a distance of 40 yards or so it would foul the crossing from one line to another, over which crossing a train had already been accepted to run.

The Inspecting Officer pointed out that considerable alterations were in progress on this portion of the line which by interlocking the signal in rear with the junction crossings would remedy this latter point.

#### GREAT CENTRAL :

February 14th.—As an up passenger train from Sheffield to Mexboro' was approaching Attercliffe Junction, it came into collision with the rear van of an up

ballast train which had been brought to a stand at the Attercliffe Junction home signal.

The guard of the passenger train and five passengers were injured.

The Inspecting Officer found that this collision was primarily due to the fact of the passenger train having been admitted to the "Woodburn Junction and Attercliffe Junction" block section while the ballast train was still in that section, and that this result was caused by irregular block working in the Woodburn Junction signal-box.

The signalman in this box stated that just previous to the arrival of the passenger train at his box, being uncertain as to what signals had been sent with regard to it, he referred to the train register book which was kept in his box by a register boy, and saw recorded in it that the "Train out of section" signal for the ballast train had been received from Attercliffe Junction, and that the passenger train had been accepted by that box. Relying therefore on these entries he believed that all was right for the passenger train, and he accordingly lowered his home and starting signals for it.

It was clear that the entries in the book had been made in a careless and irregular manner, and that the signalman was misled by them. This man, however, offered the passenger train to Attercliffe Junction, when his block instrument must have been showing "Train on line," and therefore acted in distinct contravention of his block rules in offering another train whilst his instrument was in that position.

The signalman in the Attercliffe Box appeared to have carried out his block regulations and signalling duties quite correctly, but the Inspecting Officer called attention to his want of action on receipt of the "Train entering section" signal for the passenger train. He knew that if this signal was correct a collision must occur, but he stated that he did not consider it necessary to take any steps to prevent it. He should certainly have at once communicated with Woodburn Junction by telephone, and he should have warned the driver of the ballast train of his danger; had he done so, it was quite possible that in the minute or minute-and-a-half which elapsed between the receipt of the signal and the collision, steps might have been taken which would have averted the collision.

#### GREAT NORTHERN:

April 4th.—An up mail train from Manchester to King's Cross, just after passing the up main home signal at Westwood Junction, was run into by a light engine, which was proceeding to New England on the down goods line. Both were proceeding slowly at the time, and no one was injured.

The Inspecting Officer found that the signalman at Westwood Junction box after allowing the mail train to pass his up home signal put the signal to danger immediately after the rear brake-van had passed it, and that the effect of this was also to set the slip points leading from the down goods to the down main line. The light engine was proceeding along the down goods line at this moment and so slipped out on to the through road and fouled the up main line just as the last three carriages of the mail train were passing, coming into collision with them. The signalman was to blame for putting the signal to danger so soon in contravention of the Company's Rule, a copy of which was displayed in his box.

The driver of the light engine was not free from blame, as he was proceeding along the goods line to the engine-shed, after stopping at the water-crane, without getting permission from the signalman, as he should have done.

The Inspecting Officer pointed out that the water-crane was not well placed in regard to the down goods home signal, and that it would be much better situated if it could be put back to the home signal in question, as drivers evidently passed this signal at danger in order to get water.

#### LANCASHIRE AND YORKSHIRE:

November 4th.—A passenger train from Manchester to York was turned down the branch line to Burnley at Todmorden No. 3 signal-box, instead of proceeding

along the down main line, and ran into a pilot engine which was standing about 130 yards along the former line. The collision occurred during a dense fog.

The driver and fireman of the pilot engine were both very severely injured; the driver and fireman of the passenger engine were also both injured, and four passengers complained of slight injuries.

On the day in question the Liverpool and Manchester express to York, which usually runs as one train from Rochdale, was run in two portions, owing to the Manchester portion being delayed through the dense fog which was prevailing at the time.

On the Lancashire and Yorkshire Railway, information as regards the running of important trains is conveyed to the various signal-boxes concerned by telephone-circuit calls, i.e., a certain number of successive signal-boxes are grouped in a circuit, and the signalman at the first box in a circuit, on the departure of a train, calls up all the boxes in that circuit on the telephone simultaneously, and after a short pause gives the information as to the time the train in question leaves his station, which is heard simultaneously by all the signalmen in the circuit. The man in the end box of that circuit then, if so instructed, forwards the message to the next circuit, and also sends a further circuit message when the train in question passes his box. Thus, Todmorden No. 2 box, one of those concerned in the collision in question, is the last box in the circuit Summit West box to Todmorden No. 2, and the first box in the circuit Todmorden No. 2 to Hebden Bridge, as regards down main line trains.

The Company attach great importance to these circuit calls, as they enable signalmen to know beforehand how trains are running.

When the signalman in Todmorden No. 2 box, the end box in that circuit, received the circuit call for the first portion of the York train, he forwarded the circuit call to the next circuit, in which Todmorden No. 3 is the next box, at once. He subsequently received the circuit call for the Manchester portion, which he duly forwarded.

The signalman at Todmorden No. 3 box had not attended to these circuit calls as he was busy shunting, and so was unable to leave his work and go to the telephone to receive the messages, and it appeared that this pretty frequently happens. Accordingly he was unaware that the York train was running in two portions.

When he received the signal for the second portion of the express train, he acknowledged it, and offered it to the box in advance on the main line, Todmorden No. 4, and he lowered all his main line signals for it, thinking that it was a Manchester to Leeds passenger express train, due to stop at Todmorden Station at 4.55 p.m.

After this he let a pilot engine out of the coal sidings just behind his box, on to the down branch line to Burnley, the engine being required to bank a goods train which was coming from Hebden Bridge to Burnley, and as it required water he arranged for it to cross to the up line to go to the water column as soon as the express, which he had accepted, had passed. Accordingly, the pilot engine went about 130 yards down the Burnley line to get to the cross-over road leading to the up line.

While he was talking to the driver of the pilot engine he was called on the telephone by the signalman at the next box in advance on the Burnley line, who asked him where was the Burnley train, then due to leave Todmorden. He enquired by the telephone of No. 2 box whether the train last signalled was the branch train, and heard the answer "Aye."

The man in No. 2 box had, however, received at the same time a circuit call from Summit West box, and took the receivers off both telephones, which are alongside each other in the signal-cabin, at the same time. He did not hear what the man in No. 3 box said to him as he was attending to the circuit message, and to which he replied "Aye." Unfortunately, the man in No. 3 box heard the word "Aye" intended for the signalman at Summit West, and, thinking the approaching train was the one for Burnley, put his main line signals to danger and reversed the junction points.

He reversed his junction points in order to get the pilot engine across to the up line, as he had to get it off the down line before he could let the Burnley train go, and he then thought that the train he had accepted was the Burnley branch train and not a main line train, and that the branch train would be standing in the station while this was being done. Having reversed his junction points, he was turning to the telephone to ask Hodgson at No. 2 box to cancel the train he had accepted, when the express went by and was turned on to the branch line and violently collided with the pilot engine.

The Inspecting Officer considered that the signalman in No. 3 box was alone to blame in the matter, as, if in doubt of what the second express train was through not having attended to the circuit calls, he should have called up No. 2 box before accepting it in order to ascertain.

His getting the answer intended for another man on the telephone was a pure accident, but after accepting the train he should not have reversed his junction points until he had got the train cancelled by the box in rear, or had brought it to a stand at his own home signals.

But for the very dense fog prevailing at Todmorden at the time, the accident would not have happened, as this man stated that, when he misses the circuit calls, he can tell whether the trains are through expresses or not by seeing whether they stop at Todmorden Station.

#### LONDON AND NORTH WESTERN :

June 22nd.—As a passenger train from Crewe to Chester was running through the North Junction, Crewe, it came into collision with a light engine which was standing foul of the junction.

The passenger train had very nearly come to a standstill when the collision occurred, so that although the fireman of the light engine fell off his engine and suffered some slight injuries, and one passenger in the train subsequently made a verbal complaint of personal injuries received, the shock of the collision was so slight that most of the passengers were unaware that it had occurred.

The Inspecting Officer found that this collision was due to carelessness on the part of the driver of the light engine who allowed his engine to run past a signal at danger.

#### NORTH EASTERN :

July 20th.—As an up passenger train from Saltburn to Darlington was running through Polam Junction, near Darlington Station, it came into collision with the engine of an empty passenger train which was standing on the main line foul of the junction. Twenty passengers complained of personal injuries.

The Inspecting Officer found that this collision was due to the fact of the up passenger train from Saltburn having been allowed to run through Polam Junction whilst that junction was, unknown to the signalman in the Polam Junction signal box, fouled by an engine which was engaged in shunting some empty passenger vehicles. The circumstances under which this empty passenger train came to be in this position without the knowledge of the signalman in the box controlling the junction are as follows:—

Two passenger trains had arrived on the up loop station line at Darlington from the north, and the vehicles of these two trains had been put together to form a train which was to start southwards from No. 2 bay platform line.

These vehicles were first put together and shunted into the back line, where a waggon had to be dropped, and they were then to be shunted from that line on to No. 2 bay platform line, an operation which is carried out nightly with the vehicles of these two trains.

Owing to the fact that the connection between the up loop station line and the No. 2 bay platform line is situated only 85 yards north of the South signal-box, and that the train was over 600 feet in length, it was necessary in carrying out this operation for the front of the train to run considerably past the South signal-box on to the up main line towards the Polam signal-box, or, in other words, to enter the section between these two boxes.

There is no exemption from block working over this section, and before, therefore, this shunting operation was carried out, the signalman in the South signal-box should have offered the train to the signalman in the Polam signal-box, and it should have been duly accepted by the latter. The signalman in the Polam signal-box should then have pulled over his release lever enabling the signalman in the South box to lower his up platform line starting signal, which would give the driver permission to run along the up main line as far as the Polam Junction up home signal, situated 105 yards north of that box.

Had the above described procedure been carried out, the signalman in the Polam signal-box would have known that the empty passenger train had entered the section, but the train was never offered to Polam signal-box at all, and, owing to the release lever in the latter box being at the time over, the signalman in the South signal-box was able to lower his up platform line starting signal without any reference to the Polam signal-box. This was what actually occurred, and the signal was consequently lowered for the train to enter the section without the signalman in the Polam signal-box knowing anything about it.

When the up platform line starting signal was lowered by the signalman in the South signal-box, the driver in charge of the engine of the empty passenger train took his train forward, bringing his engine to a stand just behind the Polam Junction up home signal, which was as far as he had permission to go. In this position, however, the train, owing to its having three carriages more than usual on it, was not far enough forward to clear the points through which it had to be backed on to the bay platform line, and the shunter superintending the operation gave the driver a lamp signal to pull a little forward. The driver was perfectly aware that the Polam Junction home signal was against him, and that he should not run past it, but he did so, thereby bringing his engine into a position where it was fouling the junction between the main lines and the branch lines from Saltburn. He was just about to back his train when his engine was run into by the up passenger train from Saltburn, which the signalman in the Polam signal-box had accepted in ignorance that there was any train in the section between the South signal-box and his own box.

The Inspecting Officer considered that the primary cause of this accident was the neglect to observe block working regulations between the two boxes, which resulted in the train entering the section without the knowledge of the signalman in the Polam box. These regulations were not only neglected on this occasion, but it appeared that they were habitually disregarded when shunting operations were carried out between these two boxes.

Further, in spite of this disregard of block working rules, the signalman in the Polam signal-box would not have been left in ignorance of the presence of the train in his section if he had retained in his hands the control over the South cabin starting signals. But it appeared that it was customary to keep the release lever in the Polam signal-box normally pulled over, or, in other words, for that box to entirely abandon the control over the South signal-box up starting signals which had been specially given to it.

The habitual disregard over this section of block working in connection with shunting operations, and the neglect to make use of the safety precautions provided were points which called for the Company's earnest attention.

Driver Allen was to blame for running past his signal at danger. It appeared that this was not an unusual occurrence in shunting operations at Darlington, and the Inspecting Officer considered that the matter should be inquired into by the Company.

The signalmen in the Polam box were partly responsible for the collision, as they should have known that the engine of the empty passenger train was standing at their home signal. It was standing in good view of the box, about 75 yards from it, and its lights were burning. The collision occurred just as they were changing duty, so the engine must have been at or near the home signal for some minutes while the men were in the box together.

The Inspecting Officer suggested for the consideration of the Company whether something could not be done to

simplify the signalling arrangements on the south side of Darlington Station. The short block section between the South box and the Polam Junction box evidently caused inconvenience when shunting operations were being carried out, and it might be found practicable to work the points and signals both at the south end of the station and at Polam Junction from one box, thus doing away with this short block section altogether.

#### NORTH STAFFORDSHIRE :

May 25th.—While a passenger train from Stoke for Crewe was standing at the down Crewe platform in Harecastle Station, a light engine ran into the rear of it. Eight passengers were injured, but none severely.

The Inspecting Officer found that this collision was due to breach of block working rules and a mistake on the part of the signalman. This man reversed the points which he had set for the light engine after the train for Crewe had arrived, in order to allow another train to come up to the Crewe platform after the light engine had passed. He waited until he thought the light engine had arrived at the down outer home signal and then reversed the points. After this he intended to pull over No. 21 lever to lower his down advance starting signal for the Crewe line, but pulled by mistake No. 22 lever, which worked the down inner and outer home signals for the Crewe line. Had the points not been reversed, he could not have pulled over No. 22 lever.

The light engine had been meanwhile running up from Chatterley, and the driver, finding the distant signal at danger, was not running fast, but finding the outer and inner home signals off he passed them at a speed of about 15 miles an hour. Owing to the curve and cutting he could not see the tail of the train in front until within about 60 yards of it. He then put on his brake and reversed his engine, but could not stop in time to avoid the collision.

The Inspecting Officer considered that the signalling arrangements at this junction were not entirely satisfactory, and he recommended some alterations in the arrangements.

#### SOUTH EASTERN AND CHATHAM :

November 16th.—As a workmen's train from Victoria to Holborn was standing at the down stop signals at Shepherd's Lane Junction, between Clapham Road and Brixton Stations, it was run into in rear by another workmen's train from Victoria to Greenwich. Seventeen passengers in the former train complained of injury, and the guard of the latter train received a severe blow on the head. A dense fog was prevailing at the time.

The Inspecting Officer was of opinion that the Greenwich train passed the advance starting signal at Clapham Road at danger. There was no fogman at this post, and the driver and fireman stated that they could not see the signal.

The Company's Regulations forbade the use of advance starting signals as stop signals in foggy weather, and the driver justified his action in passing the signal when he was unable on account of the fog to see whether the light indicated safety or danger, on the ground that in accordance with the Company's Regulations the signal should not have been in use as a stop signal, and he was not, therefore, bound to determine for himself its position before passing it.

The regulation regarding the disuse of advance starting signals in foggy weather specifically mentioned engine-drivers as one class of employees to whom the instructions were applicable, but the Inspecting Officer did not hold that the regulation in question would either excuse a driver from looking out for an advance starting signal in foggy weather, or justify his passing such a signal, if he could see that it indicated danger.

On the other hand, provided that the signal was invisible, and fog signalling regulations were known, by the presence of a fog signalman, to be in operation, the instruction would warrant action similar to that taken on this occasion by the driver.

Unfortunately, the evidence given as to the atmospheric conditions prevailing at the time of the accident was highly conflicting.

The driver was, however, aware that there was no fogman at the signal. In the absence of fog signalmen he was not warranted in assuming that the special regulations relative to fog signalling were in force. Moreover, he practically acknowledged that, on his journey from Victoria to Clapham Road, the condition of the weather was not such as to call for fog signalling. It was difficult then to understand how he could reasonably expect one set of regulations to be in force as he approached Clapham Road Station, and another set as he left the station.

Under the circumstances, the Inspecting Officer did not consider that the driver was justified on this occasion in passing the advance starting signal without first satisfying himself as to its position.

But the regulations of the Company regarding the use of advance starting signals did appear somewhat open to misconception by drivers. For this reason he considered that the driver should be held responsible rather for an error of judgment than for wilful neglect of the rule that the absence of a signal must be considered as a danger signal and treated accordingly.

### F.—Collisions within fixed Signals at Stations or Sidings.

Inquiries were held into 16 collisions in this class, which had resulted in the death of 1 servant and injury to 55 passengers and 15 servants.

Fifteen of these collisions were either directly caused or contributed to by mistakes or negligence on the part of the Companies' servants. Five of these, however, occurred in foggy weather, one was directly caused by the disconnection of some point rodding, in two cases the Inspecting Officer pointed out the necessity for improvements in signalling and other arrangements at the places where the accidents happened, in one case the necessity for better supervision of the staff, and in one case he drew attention to the hours of duty of the servant in fault which he considered to be too long.

The remaining case was due to the failure of a signal.

#### CALLEDONIAN :

March 27th.—A passenger train from Rutherglen, on arriving at Maryhill, came into collision with an empty train which was standing with engine attached in the south dock line.

Six passengers and three servants of the Company, viz., the driver and guard of the train from Rutherglen, and a shunter were injured.

The Inspecting Officer found that this collision was similar in nearly every respect to one that occurred on the 22nd June, 1898, and was due to a blunder on the part of a signalman, who, as on the former occasion, set the road and lowered the signals for the Rutherglen

train to run into the south dock, entirely forgetting that a train of empty coaches with an engine attached was already standing there. The empty coaches were to form a train from Maryhill to Bothwell, and were to have been shunted on to the down main line and backed to the down platform (from which they were to start) before the arrival of the train from Rutherglen. This was the regular way of working, and was thoroughly known by the signalman.

It was somewhat unusual to find a man committing the same error and causing a precisely similar mishap twice within a comparatively short period, and the Inspecting Officer suggested that it might be that this man's memory was defective; but he considered that

the practice of allowing empty trains to stand upon lines which are required for traffic, and of shunting them from one line to another, according as the one or the other is for the moment available, was open to grave objection, and likely to lead to accidents similar to the one under consideration.

The experience at Maryhill indicated that additional siding accommodation was needed in which the empty trains could be accommodated with safety during the interval of time between their arrival and departure, and the Inspecting Officer recommended the Company to consider the possibility of providing a siding for this purpose.

April 18th.—As a train of empty mineral waggons from Bellside for Newton was passing through Holytown Junction Station, it came into collision with an engine with van attached which was proceeding in the wrong direction on the down line towards Bellside Junction. The two drivers and two firemen and the brakeman in the van attached to the engine were injured.

The Inspecting Officer found that this collision was primarily due to a mistake on the part of the signalman at Moss End West Junction, who, with the intention of putting the engine and van on to the up main line for the purpose of proceeding to Bellside Junction, set the west cross-over road instead of the east cross-over road, to enable the engine to cross, and gave the driver a hand signal to start. But as, when he did so, the engine was standing on the down main line opposite to his cabin, never having gone as far as the west cross-over road, the pulling over of the points of the latter was of no avail. When, therefore, the driver acted upon the signal to start, the engine remained on the down line. Neither the driver, fireman, nor brakeman, either then or at any subsequent moment, noticed that they were on the wrong line, and they travelled in this way for  $1\frac{1}{2}$  miles, the engine with its tender in front and the van behind, being signalled on the block instruments from box to box in the correct manner, until they met the down train at Holytown Junction.

The Inspecting Officer pointed out in the signalman's favour that the absence of disc signals for controlling the movement of engines, &c., through the cross-over roads facilitated the error. Had there been such signals the driver of the engine would not have moved until the disc for the east cross-over road had been pulled off for him, and this could not have been done until the points had been set for the cross-over road.

He, therefore, strongly recommended the Company to provide disc signals at both these cross-over roads.

Although the chief responsibility rested upon the signalman, it was impossible to absolve from all blame the driver, fireman, and brakeman who were with the engine and van. Their remarkable lack of vigilance in failing to detect the fact that they were on the wrong line undoubtedly contributed to the disaster.

#### GLASGOW AND SOUTH WESTERN :

June 22nd.—When the carriages of an up passenger train from Glasgow had been drawn forward on No. 5 platform line clear of the junction of the carriage sidings, at the south end of Kilmarnock Station, and were standing on the junction of Nos. 5 and 4 platform lines preparatory to being shunted into the carriage sidings, an up special passenger train from Troon, which was not booked to stop at Kilmarnock, was signalled to No. 4 platform line, and over-running the stop signal, which was at danger, collided with the empty coaches. No persons were injured.

The Inspecting Officer found that the chief responsibility for this accident rested with the driver of the passenger train from Troon, who knew that the distant and rear home signals for No. 2 signal-cabin on No. 4 platform line were at danger when he was passing No. 1 cabin, and had a distance of about 370 yards in which to bring his train to a stand before reaching the stop signal. He did not, however, approach the station with proper care, nor with sufficiently reduced speed to bring his train to a stand at the stop signal.

He had, however, received an "all right" distant signal for No. 1 cabin, and assumed that as he was not booked to stop at Kilmarnock he would, therefore, have a clear road through the station on the up main line; but in view of the Company's regulations which should

have governed his rate of speed this did not absolve him from blame.

At the same time, it was clear that the receipt of an "all-right" distant signal was distinctly misleading, and the Inspecting Officer was of opinion that the signalman in No. 2 box was to blame for this, as he appeared to have accepted the train in error by the "line clear" instead of the "section clear" signal. The signalmen in No. 1 box, however, showed want of judgment, as they had in full view of them the distant signal of No. 2 cabin, and so long as that signal stood at danger they should, in the Inspecting Officer's opinion, have kept their own distant signal at danger.

In conclusion, the Inspecting Officer called attention to the danger that existed from the complicated system of acceptance signals in force on this Company's lines, there being four different signals in use for this purpose.

#### GREAT NORTHERN :

December 28th.—Just after a passenger train had started from platform line E at King's Cross Station, it was run into by a goods train from Farrington Street. Five passengers complained of injury.

The Inspecting Officer found that the signalman in the West box, after the previous passenger train had left the suburban line, put back the lever working the starting signal for the down slow line and reversed the points so as to lead to the down main No. 2 in the usual way, but owing to the amount of smoke and steam hanging about under the bridge in which the signal arm is placed, he could not see whether the arm responded to the lever, and, by some means, the signal arm stuck and remained off. He then lowered the signal for the passenger train to start from platform E, but when it had started on to No. 2 road the goods train was passing slowly through the station, and the driver finding the signal for the slow line (on which he had to go) off for him, proceeded, and as the points were set for No. 2 road his train came into collision with the passenger train.

The Inspecting Officer pointed out that owing to the wires to the starting signals crossing under the rails just ahead of the starting signals of all the lines, a large quantity of ashes and sand was dropped by engines along the rails over the wires, which found its way through the joints of the trunking protecting them, and he thought that some cinder must have caused the wire to jam in one of its supports. It was impossible to inspect these wires except when there was no traffic, but for the reasons given they should be inspected frequently and the supports kept as clean as possible. As the starting signals for the suburban line were frequently obscured by smoke and steam from an engine standing at the starting signals of an adjoining line, he thought that the Company should consider the advisability of fitting repeaters for them in the signal-box, so that the signalman might see at a glance, under any conditions, whether the semaphore arm responds to the lever working it.

#### LANCASHIRE AND YORKSHIRE :

November 5th.—In consequence of the Burnley branch lines being blocked, owing to an accident, a passenger train from Preston to Todmorden was being brought into the station from No. 4 signal-box on the up main line, and was by accident turned into the up loop line, where it came into collision with a goods train from Rose Grove to Leeds. Three passengers complained of injury.

The Inspecting Officer found that this collision, which occurred during a thick fog, was caused by the signalman in No. 4 box mistaking two adjacent levers in the frame when he looked along it to see if the road was rightly set for the train to be drawn into the station. The fog was so thick that he could not see the points themselves.

It was unfortunate that there were no set-back signals for the cross-over road to indicate to which road the train was travelling; had there been these signals they would have been so interlocked with the points of the up loop that it would have been impossible to have pulled off the signal for setting back on to the up main line while the points were set for the up loop.



The Inspecting Officer considered that as goods and empty carriage trains had to be shunted across the cross-over road several times a day, the Company would be well advised to add the necessary signals for the operations involved. He understood that these would have been erected before, but for the fact that the box was a very old one, and that there was a probability of large alterations being undertaken at Todmorden.

November 5th.—As a Lancashire and Yorkshire Company's passenger train from Southport to Manchester was standing at the home signals of Windsor Bridge No. 3 box, it was run into from behind by a Midland Company's train from Blackburn to Manchester. One passenger complained of injury.

In the case of this collision which occurred during a thick fog, the evidence as to the position of the signals for the Midland train was conflicting, but the Inspecting Officer considered that the driver had passed the signals at danger without taking steps to reduce speed, and that apart from the question of the signals it was evident that this driver was not running in as careful a manner as he should have done, considering the thick fog that prevailed.

December 14th.—At Chew Moor, Westhoughton, a passenger train from Manchester to Southport ran into the rear portion of a coal train which was setting back on the down loop line, but which came out on to the down main line instead of going towards the buffer stops at the dead end of the loop line, through the failure of the trailing points in the down loop line to reverse when the lever working them was put back in the frame.

Eleven passengers complained of injuries, and the fireman of the passenger train was also injured.

The Inspecting Officer found that this collision was caused by an occurrence of an unusual kind, viz., by the rodding between the trailing points in the down loop line and the crank on the far side of the lines becoming disconnected at the adjusting barrel, which was situated close by the points in the 6-foot space between the down loop line and the down main line.

The facing points leading from the down main line to the down loop and the corresponding trailing points in the down loop which formed the trap points of the latter line were worked by the same lever, so that when the facing points, after the coal train had gone into the loop, were set again for the down main, the trailing points were left set to lead out from the down loop on to the down main owing to the disconnection of the rodding above mentioned.

The Inspecting Officer considered that the disconnection of the rodding at the adjusting barrel must have been due to there being hardly any of the screw threads on the rodding engaging with the screw threads in the barrel, as when subsequently examined the rodding was found to fit well in the barrel and not loose in any way, and no threads were found to be stripped.

The duty of examining the connections to the points at Chew Moor, including the adjusting barrel in question, belonged to the signal fitters, and the usual man examined them on October 30th. He stated that he then let the rodding out of the barrel about a quarter of an inch, and that he thought that there was about two inches of screw thread at the end of the rodding engaging in the barrel on that date.

On December 13th, the day before the mishap, this man's duties were being taken by another signal-fitter, who omitted to examine the adjusting barrel. He stated that he did not think it necessary to do so, as the points worked all right and fitted well against the rails on either side.

The Inspecting Officer was not, however, inclined to put all the blame on the man who should have examined the adjusting barrel the day previous to the collision, but who omitted to do so. He thought it practically certain that there could have been hardly any screw thread engaging after the barrel was adjusted by the usual signal-fitter on October 30th, who let the rod out of the barrel for a length of about a quarter of an inch on that day.

He thought it would be an improvement to the adjusting barrels if the slits were increased in length up to the commencement of the screw threads at each end, as, unless the rodding were screwed an inch and a half into the barrel beyond the screw threads, or over four inches

in all, a fitter had to judge by the amount of screw thread on the rodding showing outside the barrel as to what length of screw thread was engaging with the screw thread in the barrel, and if the actual length of thread on the rodding was not the usual amount, viz., six inches, he might be deceived.

#### LONDON AND SOUTH WESTERN :

October 21st.—As a passenger train from Twickenham to Clapham Junction was standing in Gunnersbury Station on the up loop platform line, an empty carriage train which was being propelled from the down branch line into the up loop, collided with the rear vehicle of the standing passenger train.

Five passengers complained of slight injury and shock.

The Inspecting Officer found that this collision, which occurred during a fog, was due to a mistake on the part of the signalman in the west cabin at Gunnersbury, who thought that he had heard the clearance signal for the Twickenham train on his instrument, and, therefore, allowed the empty train to be propelled into the up loop while the Twickenham train was still there. Had he looked at his indicator, he would have known that the loop was still occupied.

Owing to the fog the shunter in charge of the operation, who was riding in the guard's compartment at the leading end of the empty train, did not see the Twickenham train until he was within ten yards of it, and he is partly to blame, as he failed to make use of either hand or vacuum brake when he saw that the collision was imminent.

November 6th.—An up passenger train, belonging to the Metropolitan District Railway Company, came into collision with the rear of an up passenger train of the London and South Western Railway Company, as the latter was standing at the up platform in Turnham Green Station.

Two passengers complained of injury from shock, and the guard of the District train suffered from contusion.

The Inspecting Officer found that there was a dense fog at the time the collision occurred, and that it was impossible from the signal cabin to see the tail lights of the South Western train as it stood at the platform.

The signalman signalled the departure of this train, forgetting to pull "off" the starting signal to allow it to proceed. The train was, therefore, held at the station, while the signalman concluded it had left. When, after accepting the District train, he found that he could not lower the home signal, the lever of which was locked as the starting signal had not been used, this man assumed there had been a failure in the electrical interlocking. By means of his release key, he freed the lever of the electrical lock, and was thereby enabled to lower the home signal, and authorize the District train to enter the station. The collision resulted.

The primary cause of the accident was, therefore, the irregular method of signalling the departure of a train before it had left the station, or was ready, apparently, to leave the station. The immediate cause was the improper use of the release key.

The full responsibility for the collision, therefore, rested on the signalman.

The Inspecting Officer suggested, for the consideration of the Company, whether it would not be advisable at stations like Turnham Green, where the use of the release key is only necessary in the case of a failure in the electrical interlocking, to place the key in charge of one or other of the station officials rather than to leave it in the uncontrolled charge of the signalmen.

#### METROPOLITAN :

February 19th.—While a down Metropolitan train from New Cross was standing at the down platform at Baker Street Station, the following down Metropolitan train from Aldgate was allowed to enter the same section, and collided with the rear of the standing train. Fourteen passengers were injured.

The Inspecting Officer found that the chief responsibility for this collision rested with the signalman at Baker Street Station, who neglected to properly carry out the Company's instructions for the electric locking of signals, and was using the key of his instrument in a

manner at variance with those instructions. It was his duty to see that the disc indicating that the New Cross train was on the line was locked in position after he pressed the key of his instrument to admit it, but he did not do so, and as the instrument had failed to act properly he found on looking at it when receiving the signals for the Aldgate train, that it was indicating "line clear."

It appeared, however, that within recent years the instrument in question was the only one on which a failure of the kind had been known to occur, and the Inspecting Officer elicited that subsequently to the accident an adjustment of this instrument was made. He considered it to be a matter of first importance that signalling instruments of the kind should be maintained at the highest pitch of adjustment, i.e., that not only should the instrument be in serviceable condition when subjected to most careful manipulation, but that all possible means should be taken to prevent a failure occurring through a comparatively careless use of it. The case proved what reliance was placed by a signalman on these instruments, and the inevitable tendency to accept them as infallible. The greater, therefore, was the need for maintaining the instruments in the most accurate adjustment.

It was apparent that this was not the condition of the instrument concerned at the time of the accident, since a simple adjustment subsequent to the accident had the desired effect. It was difficult, therefore, altogether to exculpate the Company's officers responsible for the condition of the instruments from blame in the matter, and in the opinion of the Inspecting Officer they must share, in a minor degree, the responsibility for the accident.

The Inspecting Officer was informed that action had now been taken in regard to the adjustment of these instruments, and fresh instructions drawn up to meet the case, and he had no doubt that the result would render the occurrence of a similar accident highly improbable.

#### MIDLAND :

April 16th.—In this case, while a passenger train from King's Norton to Birmingham was standing at the up platform at King's Norton Station, a goods train from Halesowen to King's Norton was allowed to draw forward into the same section, and collided with the rear of the passenger train. The collision was a very slight one, and only one passenger complained of shock.

The signalman allowed the goods train to draw forward behind the passenger train for the purpose of backing into the sidings, but the goods train was longer than was anticipated, and while the driver and fireman were looking back for the guard's signal, the collision occurred.

The Inspecting Officer found that the signalman must bear the responsibility for this accident, in that he exceeded his instructions in permitting a goods train to enter the station whilst it was in occupation by a passenger train, and failed, further, to stop and verbally caution the driver of the goods train of the presence of the passenger train in front of him.

The case, although one of small importance as regards injurious results, illustrated the danger that arises from irregular working and from allowing instructions to fall into disuse, and the necessity of insisting upon the strict observance of rules and regulations by station masters and signalmen.

#### NORTH EASTERN :

January 18th.—As a passenger train from Leeds to Hull was entering one of the platform lines at the Paragon Station, it came into collision with a pilot engine, which had just previously been admitted to that line, and had been coupled up to a train of empty coaches for the purpose of drawing it out of the station. The driver and fireman of the pilot engine were both slightly bruised, and six passengers in the Leeds train made complaints of personal injuries.

The Inspecting Officer found that this collision was entirely due to a mistake on the part of the signalman, who, when admitting the passenger train to the station, pulled over the wrong point lever and set the road for the line on which the empty train was standing, and afterwards lowered the signal for that line.

April 26th.—In this case, as an up goods train, consisting of an engine, tender, one waggon, and a brake-van, was crossing at Cross Gates from the Weatherby up line to the Leeds-Selby up line, it was run into by an up coal train, which was proceeding along the last-mentioned line.

The guard of the goods train, seeing the collision imminent, jumped from the train, and the waggon fell on him, inflicting injuries from which he died.

The Inspecting Officer found that this accident must be entirely attributed to the mistake made by the driver of the goods train in acting on a signal which he well knew did not apply to his own line. The mistake was unaccountable, as the view of the two signals was good, and there was nothing in their position or arrangement to lead to such a mistake being made.

August 7th.—As a down excursion train from Leeds to Whitby was running through Grosmont on the down main line, it came into collision with three waggons and a brake van, which had been detached from an up goods train from Whitby to York, and had been shunted on to that line.

Fortunately, the driver of the excursion train saw the waggons standing on the line in time to reduce his speed, so that the results were not as serious as they would otherwise have been. The driver and fireman of the excursion train were both slightly injured, but only one passenger complained of injury.

The Inspecting Officer found that this collision was due to the signalman having accepted the excursion train from the box in rear on the down main line, and having lowered all his signals for it, forgetting that there were some vehicles at the time standing on that line.

This signalman omitted to comply with three of the Company's rules; he did not send the blocking back signal when he obstructed the main line by shunting waggons on to it; he accepted a light engine, when the line was obstructed, with the "line clear" signal instead of with the "section clear but station blocked" signal; and, when the signal for the light engine was cancelled by the signalman in the box in rear, he accepted the down excursion train under the same circumstances when he was not justified in accepting it at all.

The Inspecting Officer pointed out that the practice of shunting vehicles on to a running line and leaving them standing there, as was done on this occasion, had frequently in the past led to accidents, and that it was one which Companies should endeavour, as far as possible, to avoid.

November 24th.—In this case, as a Great Northern empty passenger train was being crossed from the down to the up line by means of the cross-over road at the east end of Castleford Station, its two rear vehicles came into collision with the engine of a North Eastern special passenger train which was running through the station on the down line.

The guard of the Great Northern train, who was riding in the brake-van at the time of the collision, was seriously injured.

The Inspecting Officer found that this collision was due to the fact of the driver of the North Eastern train not having exercised due caution in approaching the Castleford Gates box, and to his having run past both the Gates box and the Station box without ascertaining that the signals were off for him; and that the responsibility for this accident must, therefore, rest on him. At the time of the collision he had been on duty for eight and a half hours, but his booked hours for the day were 11 hours 39 minutes; this was longer than a driver should be called upon to work, and the Inspecting Officer considered that the Company's attention should be drawn to this point.

It was probable that the signalmen in the Gates and the Station boxes committed errors in judgment in not asking for the services of fog-men on this day; but, as it was clear from the evidence that the fog on this occasion was of a very variable and shifting nature, it was impossible for anyone who was not actually on the spot at the time to form a definite opinion on this point, and the signalmen must, therefore, be given the benefit of the doubt.

The only other point in connection with this accident which appeared to call for remark was the brake power

of the North Eastern train; this train was, according to the Board of Trade scale, equal to nine vehicles, and, as it was running more than 10 miles without a stop, the Company was authorized to have on it only one and a-half unbraked vehicles; its unbraked vehicles, according to the same scale, were equal to two, i.e., half a vehicle in excess of the authorized allowance.

This fact appeared to have been clearly recognized both by the foreman, who was acting on that day as station-master at Normanton, where the train was made up, and by the guard who took over charge of the train from him. Both of these officials were to blame for allowing the train to start from Normanton when its composition was not in accordance with the Company's rules, which were in strict agreement with the Board of Trade requirements.

#### PERTH GENERAL STATION:

May 21st.—After a North British up passenger train had started from No. 2 dock line at the south end of the station, and was running through the trailing points giving access to the up main line, a Caledonian up express cattle train from Brechin, which was passing through the station on the up main line, collided with the first-named train on the crossing. No one was injured.

The Inspecting Officer found that this collision was due to the want of caution and comparatively high speed with which the driver of the cattle train allowed his train to pass through Perth station, causing him to pass two signals at danger.

The signalman in the up centre cabin had accepted the cattle train and pulled off his signals before getting the acceptance of the box in front. The Inspecting Officer considered this very unsatisfactory, for it was contrary to all rules and procedure for a signalman to pull off a signal for a train to pass out of his control without previously obtaining permission from the section in front.

Block-working was not in force between the centre cabin and those at either end of the station, and trains

were signalled under the instructions of the Joint Committee by an elaborate electric bell code. In addition, there was telephonic communication between the cabins. This bell code was prepared at the suggestion of Lieut.-Col. Yorke, and the present revise had been in force since 5th March, 1900. In this code, the acceptance by all the signal-cabins of a train by the "Section clear, but station or junction blocked" signal was indicated by three pause, five pause, five beats on the bell. There was a foot-note to the table of instructions as follows:—

"Trains to be stopped and cautioned.—The rule that passenger and other trains approaching the station must be stopped and the drivers warned when the section ahead is partly occupied, must be strictly adhered to by all concerned."

In the face of this printed table of bell signals which was hung up in all the signal cabins, three signalmen, in charge of two out of the four cabins at Perth Station, stated that this warning signal was never used for the acceptance of trains between the two cabins, though instructions to this effect had been in force for 15 months.

Having in view the report by Lieut.-Col. Yorke on the accident that occurred at Perth Station on the 19th September, 1899, the existence of the old method of procedure for the acceptance of trains, notwithstanding the issue of instructions to the contrary, proved that the mere issue of printed instructions, without supervision, was not sufficient to ensure obedience on the part of the signalmen at Perth Station, and, further, that such neglect of instructions should continue for 15 months argued that the control exercised by the Station Superintendent regarding the signalling of trains was ineffective.

The Inspecting Officer suggested for the consideration of the Joint Committee that in the case of Perth Station, the same rules regarding the approach to and passage of trains through the station should be made binding on all the railway companies concerned, and that a limit of speed should be laid down for trains travelling on the main lines.

#### G.—*Collisions between Engines or Trains meeting in opposite directions.*

No inquiries were held into collisions occurring under this head.

#### H.—*Accidents at Level Crossings of two Railways.*

No accident occurred under this head.

#### I.—*Accidents in consequence of Engines or Trains being wrongly turned into Sidings or otherwise through Facing Points.*

No inquiries were held into accidents occurring under this head.

#### J.—*Accidents occurring on Inclines.*

No inquiries were held into accidents occurring under this head.

#### K.—*Trains on Fire.*

An inquiry was held into one accident occurring under this head. The fire occurred on an electric train and was due to a defect in one of the motors.

#### LIVERPOOL OVERHEAD ELECTRIC:

December 23rd.—As a train was approaching Dingle Station it came to a stand in the tunnel about 80 yards from the platform, owing to the failure of the rear motor. The driver made several attempts to restart the train, but without success. Each time the current was switched on a vivid flash was produced, which ended in setting fire to the woodwork of the rear coach.

A gale of wind was blowing from the west, that is, from the mouth of the tunnel towards the station, which caused the fire to spread from carriage to carriage, until the whole train was enveloped in flames.

There were 29 passengers, who, when the train first came to a stand, were urged by the driver and guard to keep their seats, as there was no danger. The driver and guard seem to have made some futile attempts to put out the fire, but it soon became apparent that the fire had obtained the mastery, and the passengers found it necessary to alight. They had only 80 yards to walk in order to reach the station, and the majority of them appeared to have gone to their homes without any delay, and to have suffered no ill effects from the fire. A few, however, remained behind, presumably to watch the progress of the conflagration and the result of the efforts to control it.

A station-foreman and a car-cleaner who were on duty in the station were soon called to the spot, and with the driver and guard did what they could in the first instance to control the fire, and when this was seen to be hopeless to direct the passengers to the exit from the station. About ten minutes after the outbreak telephonic messages were sent to the generating station to cut off the current. The current was at once cut off, but it was too late to be of any service so far as the fire was concerned, and the only effect of this measure was to plunge the station into darkness.

The fire caused dense volumes of pungent smoke to arise from the train, due no doubt partly to the insulating material in and around the electrical machinery and cables, and partly to the burning woodwork. This was driven by the wind along the under side of the arched roof of the station into the staircase, passage (or subway), and booking hall. As the flames increased so did the smoke, which was doubtless accompanied by heated gases—some inflammable, some suffocating—and gradually the entire tunnel became filled with the fumes.

At first the accumulation of smoke above their heads and the fact that their retreat was being cut off appear to have escaped the notice of the men in the tunnel, intent as they were upon the efforts to save the train, and when those passengers who had lingered realized their position, escape by the stairs had become almost impossible, and the danger was intensified by the darkness. Two of them failed to make their escape, and their bodies were afterwards found at the foot of an air-shaft. The station-foreman and the car-cleaner referred to above, as well as the driver and guard of the train, also lost their lives.

The Inspecting Officer, who was assisted at his inquiry by the Electrical Adviser to the Board of Trade, found that the fire was due to a defect in one of the motors, and would have been productive of no serious danger if the driver had acted with a moderate degree of prudence. When this man discovered that his rear motor had failed, his duty was to disconnect the rear motor by means of the plug provided for the purpose in his com-

partment. He should then have run into the station with one motor, as is often done. For some reason or other, which cannot be conjectured, this man, instead of disconnecting the defective motor, and in disregard of the warning of the guard, made repeated efforts to bring it into use, the result being that before long the woodwork of the rear carriage was ignited by the flashes produced by the electric arc when the current was switched on to the defective motor. While the driver was so employed, both he and the guard appeared to have told the passengers to keep their seats, as there was no danger.

Both these men and the station-foreman seemed to have exhibited a lamentable lack of judgment in this respect. It was impossible not to feel that the sacrifice of life on this occasion was unnecessary and might have been easily avoided. If the passengers had been hurried out of the train, as soon as it became evident that it had broken down, and if none of them had been permitted to loiter about the station, their safety would have been secured. And if the train men and station-foreman, who deserved credit for their efforts to prevent the fire from spreading, had only realised sooner that the train was doomed, they too had ample time to escape. The cutting off of the current did no good, but by putting the place in darkness, rather increased the difficulties and danger of the situation.

The Inspecting Officer pointed out that the circumstances connected with this fatal occurrence directed attention to the advisability of removing all woodwork as far as possible from the neighbourhood of the electric machinery upon railway carriages, and of adopting for the purposes of insulation some material which is un-inflammable and smokeless.

He also considered that stations situated in tunnels on electric railways should have as little woodwork about them as possible. The platforms should be of stone or concrete, and buildings such as signal-boxes of brick or iron. He was glad to be able to report that the Liverpool Overhead Railway Company had adopted this principle in reconstructing Dingle Station, there being now practically no woodwork at all about the place.

### L.—Miscellaneous.

Four accidents under this head, by which 2 persons were killed and 18 passengers and 4 servants were injured, formed the subject of inquiry.

Three of these accidents were caused or contributed to by mistakes or negligence on the part of servants of the Railway Companies, but in one case the accident was primarily caused by the breaking loose of a portion of a goods train, and in another the Inspecting Officer called attention to the want of safety precautions at a level crossing. The fourth case arose from the derailment of a waggon of a goods train, and the Inspecting Officer could not say definitely what caused the derailment.

#### CALEDONIAN:

May 14th.—While a Caledonian goods train from Gushetfaulds to Carlisle was approaching Gretna Junction on the up main line, the rear portion of it became derailed and, fouling the down line, collided with a Glasgow and South Western Company's goods train from Carlisle for Glasgow.

Although the effects of the collision were serious so far as the rolling stock was concerned, the personal injuries were surprisingly small. The driver and fireman of the leading engine of the Glasgow and South Western train escaped with a few bruises, and the brakesman of the Caledonian train was thrown down in his van and bruised by the shock of the collision.

The Inspecting Officer found that one pair of wheels of a waggon of the Caledonian Company's train had left the rails a mile or so north of Gretna Junction, and that this eventually led to the derailment of other waggons and to the parting of the train near the middle.

He could not say definitely what caused the original derailment of the pair of wheels north of Gretna, but it appeared that one of the waggons near the middle of the train was loaded with cylindrical steel forgings of different weights and sizes.

The waggon was an ordinary 8-ton goods waggon, and the forgings were arranged, each with one end on the floor of the waggon, and the other resting on and projecting beyond the end of the waggon. They did not appear to have been lashed or secured in position in any way. It was not improbable that the raised ends of these heavy steel cylinders at some time during the journey rolled to one side of the waggon, thus throwing most of the weight to one side, and taking it off the wheels on the opposite side. Such an uneven distribution of weight would render the derailment of the waggon a likely thing to happen especially on a curve, such as exists at the spot where the first marks on the sleepers appeared, and although it was not possible to speak with certainty, it was highly probable that this was the vehicle that first left the rails. If this conjecture were correct, it would seem that sufficient care was not taken when loading the steel forgings, so to secure them that they could not shift their position during the journey.

#### LANCASHIRE AND YORKSHIRE:

October 24th.—As a down goods train from Low Moor to Leeds was passing through Bowling Tunnel, the rear 16 waggons and brake-van broke loose through the dis-

connection of the draw bar of the waggon in front, and remaining in the tunnel were run into from behind by a down goods train from Low Moor to Laisterdyke, which was following on the same line.

This collision caused two of the waggons of the first train to foul the up line over which a passenger train from Leeds to Manchester was just about to pass, with the result that the engine and some of the carriages of this train were damaged.

The shock to the passenger train was slight, and no one complained of injury. The guard of the goods train for Leeds was shaken by the first collision.

The Inspecting Officer found that the blame for these collisions rested with the signalman at Bowling Junction box, who failed to carry out the important duty of ascertaining whether the rear vehicle of the first goods train had a tail lamp attached to it when it passed his box.

It was impossible to say what caused the disconnection of the drawbar of the waggon, which was one belonging to private owners.

#### LONDON AND SOUTH WESTERN :

February 21st.—A goods engine which was running light from Brentwood to Nine Elms on the up line, collided with an omnibus which was being driven across the railway at Grove Park Terrace level crossing, near Chiswick.

There were three occupants of the omnibus at the time of the accident, the driver, the conductor, and a timekeeper. All of these were in the employ of the Omnibus Company. The timekeeper was killed, the driver sustained such serious fractures that he succumbed two days afterwards, and the conductor was severely injured.

The printed instructions for the gatekeepers at this level-crossing referred them to paragraphs 116 to 124 of the Railway Rules and Regulations. The portions of these paragraphs which have any bearing on a level-crossing of the type under consideration, viz., one which is not a block post, and is not provided with fixed signals, are as follows :

118. . . . . The gates must always be kept shut across the roadway, except when required to be opened to allow the line to be crossed.

119. (a) When it is necessary for the line to be crossed at a place which is not a block signal post, the gatekeeper must, before opening the gates, satisfy himself that no train is near. . . . .

121. Except at level-crossings where the gates on both sides of the line are opened simultaneously, the gate towards which road vehicles . . . . . are approaching must not be opened until the opposite gate has been first opened, so as to allow them to cross over without stopping upon the line.

124. . . . . Gatekeepers and others in charge of gates . . . . . if any part becomes defective . . . . . must request the nearest plate-layer to have the same put right, and the matter must be reported to the nearest station-master.

In addition to these printed instructions, there appeared from the statements of the two gatekeepers, to have existed verbal instructions to the effect that the gates were not to be opened after a warning bell signal had been received for the approach of a train in either direction, until that particular train had passed the crossing. Owing, however, to the increase of traffic over the crossing, the gatekeepers appeared during the last six months to have allowed this instruction to fall into disuse, at least as regards trains approaching from Chiswick on the down road. There could be no doubt that the station-master was aware of the change made and tacitly at least consented to it. It was only fair therefore to assume that the gatekeepers were acting under authority in departing from their former practice, as regards the approach of down trains.

It was, however, unfortunately, to this alteration in the method of working the gates that the accident was attributable, in accordance with the evidence of the gatekeeper, who stated that he heard a bell signal sound in his cabin as he stood on the crossing, and concluded it was the warning signal for a train approaching on the down line. He did not appear to have recognized the number of beats of the bell, but apparently assumed the signal to have been a warning signal for a down passenger train, as he was expecting a train of this description at that time. In accordance with existing practice, he therefore opened the gates for the passage of the omnibus. It was difficult to understand how, if he looked both up and down the line, after opening one gate and hearing the signal, he failed to see the light engine, which was standing at the up advance signal post.

The Inspecting Officer came to the conclusion that the gatekeeper had not used all the means in his power to satisfy himself that no train was near, when he proceeded to open the gates to allow the omnibus to pass, in that he failed to see the light engine when it was possible for him to do so.

It was evident that, at a level-crossing of this description, the mere repetition of a bell signal in a gatekeeper's cabin was not a sufficient indication of the approach of trains, and the Inspecting Officer considered that indicators for both lines showing the position of approaching trains should be provided in conjunction with the bell.

The railway company appeared to have recognized that the growth of the traffic over the level-crossing rendered further safety precautions advisable, for the directors had the previous year sanctioned the erection of new gates and interlocking signals, and the work was actually commenced in the month of July.

It was to be regretted that, when in November the question of widening the crossing was raised by the Urban District Council, the Company, after recognizing the advisability of additional precautions, permitted the scheme to be postponed on so small an issue.

At the time of the accident, the level-crossing being provided with gates and gatekeepers appeared to conform with the obligations for a turn-pike or other statute road laid down in the Acts of 1842 and 1845, which were in force at the time this railway was constructed. It did not, however, conform with the present day requirements of the Board of Trade for a public road level-crossing. These requirements are obligatory for new railways, but are not necessarily retrospective.

Further, the Company maintained that the crossing in question was not a public road at the time the railway was constructed, but an accommodation or occupation level-crossing. So far as the deposited plans for the railway were concerned, this appeared to be the case. As an accommodation or occupation level-crossing, the requirements of the Board of Trade were more than fulfilled in that the Company were not under an obligation to provide a gatekeeper for such crossings.

#### NORTH EASTERN :

December 27th.—As an express passenger train from York to Newcastle was running into No. 7 platform line at Newcastle Station, it came into collision with the buffer stops at the end of that line. The speed of the train at the time of the collision must have been small, as, though the buffer stops were damaged and the engine was injured, the remainder of the train was not damaged in any way, no glass being broken. No passengers were seriously injured, but 17 complained of slight personal injuries.

The Inspecting Officer found that this collision was due to a mistake on the part of the engine-driver who mistook the signal for No. 7 line which was lowered for him for that of No. 8 line which is a through line, and discovered the mistake too late to enable him to bring his train to a stand before coming into collision with the buffer-stops.

The following is a SUMMARY of the circumstances which contributed to the accidents inquired into by Inspecting Officers in the year 1901 in comparison with the ten preceding years :—

Circumstances which contributed to the Accidents or Collisions.*	Number of Cases.										
	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
Fracture or unloosening of couplings ... ..	—	—	—	2	3	1	1	—	2	1	1
Defective maintenance of rolling-stock ... ..	5	—	4	—	1	—	1	—	1	—	—
Defective maintenance of road or works ... ..	5	5	4	2	4	2	1	2	5	1	1
Defective construction of rolling-stock ... ..	3	1	—	1	1	—	—	3	2	2	1
Defective construction of road or works ... ..	2	2	2	1	—	—	1	—	—	4	1
Insufficient or defective accommodation for the requirements of the traffic ... ..	3	—	—	2	1	1	4	2	1	—	1
Insufficient establishment, long hours, or inexperienced servants ... ..	5	9	2	3	2	1	1	—	3	—	1
Inadequate or unsuitable brake power ... ..	12	3	2	—	1	—	—	1	1	1	—
Defective arrangement of signals or points, or want of or defective locking-apparatus, or want of safety-points or locking-bars or bolts ... ..	7	4	7	5	3	9	2	3	3	1	2
Insufficient or inadequately enforced regulations .. ..	14	14	5	6	9	14	6	7	3	3	6
Defective system for securing intervals between trains, or want of telegraph communication or of block system ... ..	8	6	3	2	6	5	1	3	1	1	1
Negligence, want of care, or mistakes of officers or servants	61	38	37	28	56	46	38	47	57	56	38
Excessive speed, having regard to engine, road, or other circumstances ... ..	16	9	5	3	9	5	4	7	7	10	8
Foggy or stormy weather, or snowstorms ... ..	12	2	—	6	5	1	5	3	13	8	10
Other or doubtful causes ... ..	—	—	4	2	3	4	3	7	4	2	4

\* The above summary of the circumstances which were the causes of or contributed to the accidents and collisions inquired into for the years 1891 to 1901 shows an excess over the *number* of the accidents and collisions, inasmuch as a large number of them arose from more than one of the causes above enumerated.

Of the 44 train accidents into which inquiries were held, the largest number occurred on the following railways, viz.:—

	Length of Railway, Miles at Dec. 1901.	Train Mileage in the Year.
8 on the North Eastern ... ..	1,654	31,579,435
6 on the Lancashire and Yorkshire ... ..	556	18,282,375
4 on the Great Northern ... ..	832	23,315,650
4 on the London and South Western ... ..	911	17,800,138
3 on the Caledonian ... ..	956	16,985,047
3 on the Midland ... ..	1,441	48,061,501
2 on the Glasgow and South Western ... ..	400	7,092,924
2 on the Great Eastern ... ..	1,109	21,703,979
2 on the Great Southern and Western (Ireland) ... ..	1,074	5,750,186

Of the remaining 10 accidents not more than one occurred on any one railway.

In connection with this table it should, however, be noticed that accidents taking place upon any one particular railway may occur to trains belonging to other Companies, and may not be caused by any fault of the Company owning the line.

#### ACCIDENTS GENERALLY TO SERVANTS OF RAILWAY COMPANIES AND CONTRACTORS.\*

14 railway servants were killed and 571 injured whilst employed in the coupling and uncoupling of vehicles ; 74 were killed and 1,738 injured whilst employed in various other shunting operations, making a total of 88 killed and 2,309 injured while shunting ; 20 were killed and 109 injured by being caught between vehicles ; 9 were killed and 64 injured by falling or being caught between trains and platforms, walls, &c. ; 95 were killed and 117 injured whilst working on the permanent way and sidings ; and 164 were killed and 301 injured whilst walking, crossing, or standing on the line on duty. The total number of railway and contractors' servants killed and injured in the course of railway traffic, exclusive of accidents to trains, was 503 killed and 4,087 injured. Of these, 20 of the killed and 29 of the injured were contractors' servants.

The following is a comparative statement relating to the number of railway servants killed and injured whilst employed in shunting operations, including the coupling and uncoupling of vehicles, for the years 1892 to 1901 inclusive, during which period of ten years 1,642 miles of additional railway have been opened, and the number of railway servants employed has been increased.

Year.	In Coupling and Uncoupling operations only.		In all shunting operations <i>including</i> Coupling and Uncoupling Vehicles.	
	Killed.	Injured.	Killed.	Injured.
1892 ... ..	19	305	158	1,641
1893 ... ..	11	286	125	1,427
1894 ... ..	23	298	136	1,519
1895 ... ..	16	331	110	1,458
1896 ... ..	18	488†	136	2,548†
1897 ... ..	19	492	97	2,400
1898 ... ..	18	481	129	2,164
1899 ... ..	16	567	116	2,357
1900 ... ..	25	565	136	2,616
1901 ... ..	14	571	88	2,309

In the table following will be found the number of servants of Railway Companies killed and injured by train accidents and by other accidents in which the running of trains or the movement of railway vehicles was concerned whilst engaged in their several occupations in each year from 1874 to 1901 inclusive, and the proportion of the

\* The Returns made by the Railway Companies show that 106 persons were killed and 11,635 injured whilst on the premises of the Companies by accidents in which the movement of railway vehicles was not concerned. Of these 54 killed and 10,497 injured were servants of Companies or contractors. These casualties are not included in the figures above dealt with.

† In this year the Railway Companies were called upon by an Order of the Board of Trade to report non-fatal accidents to servants of Railway Companies "whenever they are such as to prevent the servant injured, on any one of the three working days next after the occurrence of the accident, from being employed for five hours on his ordinary work."

The effect of this Order was to bring in a large number of notices of accidents which under the old system would not have been reported.



whole number killed and of the whole number injured to the total number employed, calculated upon the numbers employed given in the returns presented to Parliament for the years 1874, 1884, and 1889, and in returns furnished by the Railway Companies to the Board of Trade for the years 1895, 1898, and 1901.\*

Year.	By Train Accidents.		By Accidents on Railways, exclusive of Train Accidents.		Proportion of Accidents occurring to Servants of Companies by Train and other Accidents to the whole number employed, on the assumption mentioned below.*		Total Numbers employed by the Railway Companies.*
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
1874 ...	46	271	742	2,544	1 in 320	1 in 89	250,000
1875 ...	21	239	744	3,379	<i>1 in 334</i>	<i>1 in 70</i>	<i>255,000</i>
1876 ...	28	236	645	2,364	<i>1 in 386</i>	<i>1 in 100</i>	<i>260,000</i>
1877 ...	22	154	620	2,009	<i>1 in 414</i>	<i>1 in 123</i>	<i>265,000</i>
1878 ...	15	156	529	1,847	<i>1 in 500</i>	<i>1 in 135</i>	<i>270,000</i>
1879 ...	8	118	444	1,836	<i>1 in 619</i>	<i>1 in 143</i>	<i>280,000</i>
1880 ...	23	118	523	1,962	<i>1 in 531</i>	<i>1 in 139</i>	<i>290,000</i>
1881 ...	19	168	502	2,278	<i>1 in 576</i>	<i>1 in 123</i>	<i>300,000</i>
1882 ...	21	153	532	2,423	<i>1 in 570</i>	<i>1 in 122</i>	<i>315,000</i>
1883 ...	11	87	543	2,373	<i>1 in 596</i>	<i>1 in 134</i>	<i>330,000</i>
1884 ...	23	115	523	2,204	1 in 634	1 in 149	346,426
1885 ...	13	81	438	2,036	<i>1 in 768</i>	<i>1 in 163</i>	<i>346,426</i>
1886 ...	4	81	421	1,929	<i>1 in 815</i>	<i>1 in 172</i>	<i>346,426</i>
1887 ...	8	109	414	1,966	<i>1 in 821</i>	<i>1 in 167</i>	<i>346,426</i>
1888 ...	7	93	389	2,100	<i>1 in 874</i>	<i>1 in 157</i>	<i>346,426</i>
1889 ...	4	117	431	2,652	1 in 877	1 in 138	381,626
1890 ...	12	147	487	2,975	<i>1 in 765</i>	<i>1 in 122</i>	<i>381,626</i>
1891 ...	12	154	537	3,007	<i>1 in 695</i>	<i>1 in 121</i>	<i>381,626</i>
1892 ...	9	92	525	2,823	<i>1 in 714</i>	<i>1 in 130</i>	<i>381,626</i>
1893 ...	10	73	450	2,558	<i>1 in 829</i>	<i>1 in 145</i>	<i>381,626</i>
1894 ...	6	62	473	2,649	<i>1 in 796</i>	<i>1 in 140</i>	<i>381,626</i>
1895 ...	12	88	430	2,566	1 in 1,052	1 in 175	465,112
1896 ...	3	153	444	3,833†	<i>1 in 1,040</i>	<i>1 in 117</i>	<i>465,112</i>
1897 ...	9	140	501	3,989	<i>1 in 912</i>	<i>1 in 113</i>	<i>465,112</i>
1898 ...	16	110	488	4,039	1 in 1,060	1 in 129	534,141
1899 ...	19	196	512	4,437	<i>1 in 1,006</i>	<i>1 in 115</i>	<i>534,141</i>
1900 ...	24	180	559	4,405	<i>1 in 916</i>	<i>1 in 116</i>	<i>534,141</i>
1901 ...	8	156	503	4,087	1 in 1,127	1 in 135	575,834

*Note.*—These figures include accidents to contractors' servants, of whom 20 were killed and 29 injured during the year 1901.

The following table shows the number of men employed by the Companies in various occupations and the number of fatal accidents and injuries to each class :—

Class of Servants.	Number employed in 1901.	Number of Servants of Railway Companies killed and injured during the Year 1901.		Proportion to the Number employed.	
		Killed.	Injured.	Killed.	Injured.
Station-masters ...	8,103	2	23	1 in 4,051	1 in 352
Brakesmen and goods-guards ...	15,708	42	845	1 in 374	1 in 18
Permanent-way men ...	66,621	121	149	1 in 551	1 in 447
Gatekeepers ...	3,507	3	6	1 in 1,169	1 in 584
Engine-drivers ...	25,556	26	342	1 in 983	1 in 75
Porters ...	55,276	45	572	1 in 1,228	1 in 97
Shunters ...	10,841	41	650	1 in 264	1 in 17
Firemen ...	24,083	24	496	1 in 1,003	1 in 49
Inspectors ...	6,772	7	19	1 in 967	1 in 356
Guards (passenger) ...	7,291	8	122	1 in 911	1 in 60
Pointsmen and signalmen ...	28,496	12	70	1 in 2,377	1 in 407
Labourers... ..	53,282	33	153	1 in 1,615	1 in 348
Ticket collectors and examiners ...	3,642	1	17	1 in 3,642	1 in 214
Mechanics ...	81,440	18	26	1 in 4,524	1 in 140
Other classes ...	185,216	108	724	1 in 1,715	1 in 256
Total ...	575,834	491	4,214	1 in 1,173	1 in 137

\* The numbers employed are known accurately only for the years 1874, 1884, 1889, 1895, 1898, and 1901. The figures printed in *italics* are estimated for the years 1875 to 1883, and those from 1885 to 1888 and 1890 to 1894 and for the years 1896, 1897, 1899, and 1900 are calculated upon the numbers given in the years 1884, 1889, 1895, and 1898 respectively. The number of contractors' servants employed is not known and cannot be estimated.

† See Note † on previous page.



During the year 1901, 126 inquiries were held by the Assistant Inspecting Officers and 332 by the Sub-Inspectors into accidents, other than train accidents, that involved fatal and other injuries to 462 persons, nearly all of whom were servants of the Railway Companies, the remainder being principally contractors' servants and persons at work or transacting business on the Companies' premises.

**COMPARATIVE SUMMARY** of the Number of Inquiries into Personal Accidents to Servants of Railway Companies, &c., excluding Inquiries into Train Accidents during the years 1895 to 1901 inclusive.

1895.	1896.	1897.	1898.	1899.	1900.	1901.
285	339	362	344	319	333	458

#### ACCIDENTS TO PERSONS OTHER THAN PASSENGERS OR SERVANTS OF RAILWAY COMPANIES.

The accidents to persons passing over railways at level-crossings show a decrease on the figures for the previous year, the numbers being 55 killed and 26 injured, as against 63 killed and 35 injured in 1900. The number of trespassers killed was 282, and of those injured 154, as against 288 killed and 154 injured in 1900. The number of suicides was 144, as against 123 in 1900, and 17 persons were injured while apparently attempting to commit suicide; and of persons not included in the above classifications, most of whom were at the railway premises on business, 41 were killed and 150 injured, as against 56 killed and 134 injured in 1900.

#### ABSOLUTE BLOCK AND INTERLOCKING SYSTEMS.

The amount of progress that has been made in the adoption of these systems is stated in the Returns presented to Parliament.

The proportion in which the signal and point levers had been interlocked on railways was 99·7 per cent. in England, 99 per cent. in Scotland, 97·7 per cent. in Ireland, and 99 per cent. for the United Kingdom.

The following table shows for the 31st December 1895\* the length of double and single line in the United Kingdom open for passenger traffic, and the length of such lines worked upon the various systems :—

	Line open for Passenger Traffic.		Worked on Absolute Block System.				Worked on other Telegraph Systems.		Single Lines worked under		
	Double.	Single.	Double Line.	Single Line.			Double Line.	Single Line.	Single Engine System.	Train Porter System.	Train Staff System.
				Combined with Train Staff System.	Without Train Staff System.	By electrically controlled Train Staff or Tablet.					
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
England and Wales ...	9,325	4,472	9,310	2,200	20	1,847	15	29	228	1	147
Scotland ... ..	1,314	1,768	1,312	210	32	1,066	1	—	427	1	31
Ireland... ..	613	2,534	613	494	1	1,824	—	—	118	—	98
United Kingdom ...	11,252	8,774	11,235	2,904	53	4,737	16	29	773	2	276

\* The latest period for which Returns of this nature have been published.

## LEVEL CROSSINGS.

In most of the cases in which accidents have occurred at level crossings, the Board of Trade have had no statutory power to compel provision to be made for the public safety. The same observation applies to cases in which complaints have been received from local authorities or individuals of the working of such crossings. In some instances, however, the Railway Companies interested have, at the instance of the Board of Trade, made satisfactory arrangements, usually necessitating the construction of a foot-bridge or subway.

## CONTINUOUS BRAKES.

The continuous brakes return laid before Parliament for the half-year ended 31st December 1901, shows that the number of vehicles fitted with brakes complying with some or all of the conditions laid down in the requirements of the Board of Trade amounted, at that date, to 95 per cent. of the number in use, and that the number of vehicles fitted only with pipes and connections amounted to 4 per cent.

## GENERAL REMARKS.

This Report deals with railway accidents from two points of view, viz., the safety of the travelling public, and the safety of the men employed in working the traffic.

It is gratifying to state (for the first time in this Annual Report) that during the year no passengers were killed in actual accidents to the trains by which they were travelling. In the case of the two passengers who were overcome by the smoke and fumes arising from the fire in the tunnel and station at Dingle on the Liverpool Overhead Railway, the deaths were due to their own action in remaining in the tunnel to watch the progress of the fire and the efforts to extinguish it instead of following the example of the passengers who walked out through the station and were not injured.

The number of passengers injured in train accidents shows a sensible diminution, the number being smaller than that shown in any previous Report.

The total numbers of deaths and injuries to passengers from causes other than accidents to trains reported in 1901 were 135 killed and 1,669 injured, as against 119 killed and 1,563 injured in 1900. When all classes of accident on railways are taken into account, therefore, only one passenger was killed in 8,684,414 passenger journeys, and only one in 546,571 injured.

Season ticket holders' journeys are not included in these figures, because the number cannot be estimated. 1,879,136 season tickets were issued in 1901, and it is obvious that if an accurate estimate of the passenger journeys taken by the holders of such tickets could be made, a large increase in the number of passenger journeys would be shown, with a corresponding benefit to the passenger when calculating his risk of accident.

Although no fatalities to passengers were due to train accidents during the year, six cases resulted in the death of servants of the Railway Companies or other persons. Two servants were killed by an explosion in the firebox of an engine, three in a collision with buffer-stops, and three in collisions between trains, engines, &c. Two persons were killed while on an omnibus at a level crossing, through an engine coming into collision with the omnibus. In four of these cases of fatal accidents passenger trains were not concerned.

Ten of the cases of collision into which inquiries were held were contributed to by the foggy weather that prevailed in the latter part of the year, and although the majority of the train accidents were contributed to by mistakes on the part of the Companies' servants, the staff of the Railway Companies are to be congratulated on the safety with which they have conducted the vast volume of traffic controlled by them during the year.

The recommendations and suggestions put forward in the Reports of the inquiries held by the Inspecting Officers into train accidents have been received by the Railway Companies in a favourable manner, and the Board have been informed, in most cases, that effect has been or is being given to the Departmental suggestions.

Experiments are being made by the Railway Companies with mechanical appliances for fog-signalling designed to reduce as far as possible the extra risk of accident involved by the prevalence of fog.

The Department has continued to pay special attention to the causes of accidents to railway servants.

In the course of the twelve months 503 servants of Railway Companies and of contractors were killed and 4,087 injured in accidents other than train accidents (*i.e.* collisions, derailments, &c.). These figures are irrespective of 54 killed and 10,497 injured in accidents in which the movement of vehicles was not concerned.

Inquiries have been held by the Assistant Inspecting Officers and Sub-Inspectors of Railways into 458 cases of accidents, nearly all of which occurred to servants of the Railway Companies.

In the last Report it was mentioned that under the Railway Employment (Prevention of Accidents) Act, 1900, Rules had been drafted dealing with the twelve subjects mentioned in the Schedule appended to the Act.

Upon consideration of the objections and suggestions with respect to the Draft Rules which were lodged with them by persons and companies affected, the Board modified the Rules in certain respects, and re-issued them, in draft, as amended.

Notice was subsequently received from 11 Railway Companies requiring certain objections to the Rules to be referred to the Railway and Canal Commissioners under the provisions of the Act. The hearing of these objections by the Commissioners is now in progress, and it is hoped that as soon as it is completed, the Board will be in a position to bring the Rules into operation.

I have, &c.,

HERBERT JEKYLL.

Board of Trade,  
28th July, 1902.

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11844

DESCRIPTION OF ACCIDENT.	<div> <div>SUFFERERS BY ACCIDENT.</div> <div> <div> <div>Killed.</div> <div>Injured.</div> </div> <div> <div>Servants of Company</div> <div>Killed.</div> <div>Injured.</div> </div> </div> </div>				CAUSES OF ACCIDENT.					
					Attributable to the Rolling Stock or the Works.		Attributable to the Management.			
					Fracture or unloosening of Couplings.	Defective Maintenance of	Defective Construction of			
		Machinery of Trains.		Insufficient or defective Accommodation for the Requirements of the Traffic.						
		Road or Works.		Insufficient Establishment, inexperienced Servants, or too long Hours of Duty.						
		Machinery of Trains.		Insufficient Brake Power.						
		Road or Works.		Want of Communication between Guard and Engine-driver.						
				Defective Arrangements of Signals or Points, or Want of defective Locking Apparatus, or Want of Safety Points, or Locking Bars or Bolts, &c.						
				Want of Time-places.						
				Insufficient or inadequately enforced Regulations.						
				Defective System for securing Intervals between Trains, Want of Telegraph Communication or of Block Telegraph System.						
				Negligence, Want of Care, or Mistake of Officers or Servants.						
				Excessive Speed, having regard to Engine, or Road, or other Circumstances.						
				Foggy Weather, or Snow.						
				Improper Interference by Persons not under the Control of the Company.						
				Other or Doubtful Causes.						

<b>FESTINIOG :</b>																			
October 4th.—Passenger train left the rails near Ddualt ..	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
<b>GREAT NORTHERN :</b>																			
March 11th.—Portion of pas- senger train left the rails near Holbeck .. ..	—	3	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—
<b>MIDLAND :</b>																			
July 6th.—Passenger train left the rails at Swinton .. ..	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—
<b>NORTH EASTERN :</b>																			
December 3rd. — Passenger train left the rails near Bardsey Station.. ..	—	7	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
<b>TOTAL .. ..</b>	—	17	—	1	—	—	1	—	1	—	—	—	—	1	—	—	2	—	—

[illegible]

NAME OF RAILWAY  AND DESCRIPTION OF ACCIDENT.	SUFFERERS BY ACCIDENT.		CAUSES OF ACCIDENT.																	
			Attributable to the Rolling Stock or the Works.				Attributable to the Management.													
			Fracture or unloosening of Couplings.		Defective Maintenance of		Defective Construction of													
	Killed.	Injured.	Machinery of Train.	Road or Works.	Machinery of Train.	Road or Works.														
		Pas- sengers and others.	Servants of Company																	
		Killed.	Injured.																	

## C.—Accidents from Trains entering Stations at too great a Speed.

<b>GREAT EASTERN:</b>																			
May 21st.—Collision between mixed train and buffer-stops at Bentley Station.	—	5	—	—	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—
December 28th.—Collision between passenger train and buffer stops at Cromer Station	—	7	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—
<b>GREAT NORTHERN:</b>																			
March 15th.—Collision between passenger train and coal train at Peterborough Station .. .. .	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—
<b>GREAT SOUTHERN AND WESTERN:</b>																			
April 24th.—Collision between mail-goods train and buffer stops at Tralee Station ..	—	—	3	2	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
<b>LONDON AND NORTH-WESTERN AND MIDLAND JOINT:</b>																			
September 5th.—Collision between two passenger trains at New Street, Birmingham	—	5	—	4	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—
<b>MIDLAND:</b>																			
May 17th.—Collision between passenger train and carriage-truck at St. Pancras .. ..	—	15	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—
<b>TOTAL .. .. .</b>	—	33	3	6	—	—	—	—	—	—	—	—	1	—	5	6	—	—	1

## D.—Collisions between Engines and Trains following one another on the same Lines of Rails, excepting at Junctions, Stations, or Sidings.

<b>GREAT SOUTHERN AND WESTERN:</b>																			
February 1st.—Collision between passenger train and light engine near Abbeyfeale	—	5	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—
<b>LONDON AND SOUTH WESTERN:</b>																			
November 23rd.—Collision between passenger train and goods train at Malden ..	—	43	1	2	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—
<b>NORTH EASTERN:</b>																			
December 21st.—Collision between two passenger trains at Neville Hill, Leeds .. ..	—	6	1	2	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—
<b>WEST LONDON EXTENSION:</b>																			
December 23rd.—Collision between passenger train and goods train at Chelsea ..	—	17	—	1	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—
<b>TOTAL .. .. .</b>	—	71	2	5	—	—	—	—	—	—	—	—	1	—	4	—	3	—	—

NAME OF RAILWAY  AND  DESCRIPTION OF ACCIDENT.		SUFFERERS BY ACCIDENT.				CAUSES OF ACCIDENT.															
						Attributable to the Rolling Stock or the Works.								Attributable to the Management.							
						Fracture or unloosening of Couplings.		Defective Maintenance of		Defective Construction of											
Killed.	Injured.	Pas- sengers and others.	Servants of Company	Machinery of Train.	Road or Works.	Machinery of Train.	Road or Works.	Insufficient or defective Accommodation for the Requirements of the Traffic.	Insufficient Establishment, inexperienced Servants, or too long Hours of Duty.	Insufficient Brake Power.	Want of Communication between Guard and Engine-driver.	Defective Arrangements of Signals or Points, or Want of or defective Locking Apparatus, or Want of Safety Points, or Locking Bars or Bolts, &c.	Want of Time-pieces.	Insufficient or inadequately enforced Regulations.	Defective System for securing Intervals between Trains, or Want of Telegraph Communication or of Block Telegraph System.	Negligence, Want of Care, or Mistake of Officers or Servants.	Excessive Speed, having regard to Engine, or Road, or other Circumstances.	Foggy Weather, or Snow.	Improper Interference by Persons not under the Control of the Company.	Other or Doubtful Causes.	

## E.—Collisions at Junctions.

GLASGOW AND SOUTH WESTERN:																					
August 6th.—Collision between two passenger trains at Gorbals Junction .. ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—
GREAT CENTRAL:																					
February 14th.—Collision between passenger train and ballast train at Attercliffe Junction .. ..	—	5	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
GREAT NORTHERN:																					
April 4th.—Collision between passenger train and light engine at Westwood Junction	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
LANCASHIRE AND YORKSHIRE																					
November 4th.—Collision between passenger train and pilot engine at Todmorden ..	—	4	—	4	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—
LONDON AND NORTH WESTERN:																					
June 22nd.—Collision between passenger train and light engine at North Junction, Crewe .. ..	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
NORTH EASTERN:																					
July 30th.—Collision between two passenger trains at Polam Junction .. ..	—	20	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—
NORTH STAFFORDSHIRE:																					
May 26th.—Collision between passenger train and light engine at Harecastle .. ..	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
SOUTH EASTERN AND CHATHAM:																					
November 16th.—Collision between two passenger trains at Shepherds Lane Junction	—	17	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—
TOTAL .. ..	—	55	—	8	—	—	—	—	—	—	—	—	—	—	1	1	8	—	2	—	—

## F.—Collisions within Fixed Signals at Stations or Sidings.

CALEDONIAN:																					
March 27th.—Collision between two passenger trains at Maryhill .. ..	—	6	—	3	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—
April 18th.—Collision between mineral train and engine at Holytown .. ..	—	—	—	5	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—



NAME OF RAILWAY  AND DESCRIPTION OF ACCIDENT.	SUFFERERS BY ACCIDENT.		CAUSES OF ACCIDENT.																
			Attributable to the Rolling Stock or the Works.				Attributable to the Management.												
							Fracture or loosening of Couplings.	Defective Maintenance of	Defective Construction of	Insufficient or defective Accommoda- tion for the Requirements of the Traffic.	Insufficient Establishment, inexpe- rienced Servants, or too long Hours of Duty.	Insufficient Brake Power.	Want of Communication between Guard and Engine-driver.	Defective Arrangements of Signals or Points, or Want of or defective Lock- ing Apparatus, or Want of Safety Points, or Locking Bars or Bolts, &c.	Want of Time-pieces.	Insufficient or inadequately enforced Regulations.	Defective System for securing Inter- vals between Trains, or Want of Telegraph Communication or of Block Telegraph System.	Negligence, Want of Care, or Mistake of Officers or Servants.	Excessive Speed, having regard to Engine, or Road, or other Circumstances.
	Pas- sengers and others.	Servants of Company	Machinery of Train.	Road or Works.	Machinery of Train.	Road or Works.	Want of Communication between Guard and Engine-driver.	Defective Arrangements of Signals or Points, or Want of or defective Lock- ing Apparatus, or Want of Safety Points, or Locking Bars or Bolts, &c.	Want of Time-pieces.	Insufficient or inadequately enforced Regulations.	Defective System for securing Inter- vals between Trains, or Want of Telegraph Communication or of Block Telegraph System.	Negligence, Want of Care, or Mistake of Officers or Servants.	Excessive Speed, having regard to Engine, or Road, or other Circumstances.	Foggy Weather, or Snow.	Improper Interference by Persons not under the Control of the Company.	Other or Doubtful Causes.			
Killed.	Injured.	Killed.	Injured.																
F.—Collisions within Fixed Signals at Stations or Sidings—continued.																			
GLASGOW AND SOUTH WESTERN:																			
June 22nd.—Collision between two passenger trains at Kilmarnock .. .. .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1		
GREAT NORTHERN:																			
December 26th.—Collision be- tween passenger train and goods train at King's Cross ..	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1		
LANCASHIRE AND YORKSHIRE:																			
November 5th.—Collision be- tween passenger train and goods train at Todmorden ..	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1		
November 5th.—Collision be- tween two passenger trains at Windsor Bridge .. ..	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—		
December 14th.—Collision be- tween passenger train and coal train at Chew Moor ..	—	11	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—		
LONDON AND SOUTH WESTERN:																			
October 31st.—Collision be- tween two passenger trains at Gunnersbury .. .. .	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1		
November 6th.—Collision be- tween two passenger trains at Turnham Green .. ..	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1		
METROPOLITAN:																			
February 19th.—Collision be- tween two passenger trains at Baker Street .. .. .	—	14	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—		
MIDLAND:																			
April 16th.—Collision between passenger train and goods train at Sandhills .. ..	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—		
NORTH EASTERN:																			
January 18th.—Collision be- tween passenger train and pilot engine at Hull .. ..	—	6	—	2	—	—	—	—	—	—	—	—	—	—	—	1	—		
April 26th.—Collision between goods train and coal train at Cross Gates .. .. .	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—		
August 7th.—Collision between passenger train and part of goods train at Grosmont ..	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	1	—		
November 24th.—Collision be- tween two passenger trains at Castleford .. .. .	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	1		
PERTH GENERAL STATION:																			
May 21st.—Collision between passenger train and cattle train .. .. .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1		
TOTAL .. .. .	—	55	1	15	—	—	—	—	—	—	—	—	—	—	—	15	2		

NAME OF RAILWAY  AND DESCRIPTION OF ACCIDENT.	SUFFERERS BY ACCIDENT.				Attributed to the Rolling or the W	
					Fracture or unloosening of Couplings Machinery of Train.	Defective Maintenance of Road or Works.
	Pas- sengers and others.		Servants of Company.			
Killed.	Injured.	Killed.	Injured.			

G.—*Collisions between Engines or*  
No inquiries were held into co

H.—*Collisions at Level*  
No inquiries were held into co

I.—*Accidents in consequence of Engines or Trains*  
*Faci.*  
No inquiries were held into ac

J.—*Accide.*  
No inquiries were held into ac

K.—*Fir*

LIVERPOOL OVERHEAD ELECTRIC:						
December 23rd — Passenger train caught fire at Dingle ..	2	—	4	—	—	—
TOTAL .. .. .	2	—	4	—	—	—

L.—*M*

CALEDONIAN:						
May 14th. — Portion of goods train left rails and came into collision with another goods train near Gretna Junction ..	—	—	—	3	—	—
LANCASHIRE AND YORKSHIRE:						
October 24th. — Collision between goods train and part of another goods train at Bowling Tunnel .. ..	—	—	—	0	1	—
LONDON AND SOUTH WESTERN:						
February 21st. — Collision between goods engine and omnibus near Chislewick ..	2	1	—	—	—	—
NORTH EASTERN:						
December 27th. — Collision between passenger train and buffer stops at Newcastle ..	—	17	—	—	—	—
TOTAL .. .. .	2	18	—	4	1	—









**RAILWAY ACCIDENTS.**

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**RETURNS**

OF

**ACCIDENTS AND CASUALTIES**

**AS REPORTED TO THE BOARD OF TRADE BY THE SEVERAL RAILWAY COMPANIES  
IN THE UNITED KINGDOM,**

**During the Nine Months ending 30th September 1901,**

**In pursuance of the Regulation of Railways Act (1871), 34 & 35 Vict. cap. 78 ;**

**TOGETHER WITH**

**REPORTS OF THE INSPECTING OFFICERS, ASSISTANT  
INSPECTING OFFICERS, AND SUB-INSPECTORS OF THE  
RAILWAY DEPARTMENT TO THE BOARD OF TRADE,**

**UPON**

**CERTAIN ACCIDENTS**

**Which were inquired into.**

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**Presented to both Houses of Parliament by Command of His Majesty.**

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**LONDON :**  
**PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE**  
**By DARLING & SON, LTD., 34-40, BACON STREET, E.**

**And to be purchased, either directly or through any Bookseller, from**  
**EYRE & SPOTTISWOODE, EAST HARDING STREET, FLEET STREET, E.C.**  
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**or E. PONSONBY, 116, GRAFTON STREET, DUBLIN.**

**1902.**

**[Cd. 949.] Price 1s. 1d.**

# TABLE OF CONTENTS.

	PAGE
SUMMARY of ACCIDENTS and CASUALTIES reported to the BOARD of TRADE during the Nine Months ending 30th September 1901 ... ..	3
TABLES :—	
GENERAL NOTE showing basis on which TABLES are COMPILED ... ..	6
No. 1.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	9
No. 2.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, in the different CLASSES of ACCIDENTS to TRAINS ... ..	10
No. 3.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS, or by the MOVEMENT of RAILWAY VEHICLES ... ..	12
No. 4.—NUMBER of PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the different CLASSES of ACCIDENTS occurring on the Lines of the several RAILWAY COMPANIES, to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the COMPANIES ... ..	14
No. 5.—NUMBER of PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS, or the MOVEMENT of RAILWAY VEHICLES—	
A. PASSENGERS ... ..	16
B. SERVANTS of COMPANIES and CONTRACTORS ... ..	18
C. OTHER PERSONS ... ..	24
No. 6.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the INJURIES ; with figures for the corresponding period of the previous Year ... ..	26
No. 7.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES ; and also the Total Number of Persons employed in each Class of Service ... ..	27
No. 8.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, on the PREMISES of the RAILWAY COMPANIES ; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	28
No. 9.—NUMBER of SERVANTS of COMPANIES and of CONTRACTORS reported by the several RAILWAY COMPANIES to the BOARD of TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES ... ..	30
No. 10.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES ; and also the Total Number of Persons employed in each Class of Service ... ..	34
No. 11.—SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., reported to the BOARD of TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM, classified according to the NATURE of the ACCIDENT ; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	35
No. 12.—NUMBER of ACCIDENTS of each Class to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., reported to the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM ... ..	36
REPORTS ON ACCIDENTS INQUIRED INTO—	
A. REPORTS by INSPECTING OFFICERS ... ..	43
B. REPORTS by ASSISTANT INSPECTING OFFICERS ... ..	71
C. REPORTS by SUB-INSPECTORS ... ..	91



**Summary of Accidents and Casualties which have been reported to the Board of Trade as having occurred upon the Railways in the United Kingdom during the Nine Months ending 30th September 1901.**

**I.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c.**

Accidents to trains, rolling-stock, permanent-way, &c., caused the death of 8 persons and injury to 383 persons, viz. :—

	Total for 9 months ending 30th September 1901.		Total for the corresponding period in 1900.	
	Killed.	Injured.	Killed.	Injured.
Passengers ... ..	—	279	16	755
Servants of Companies ... ..	6	102	20	182
Other Persons ... ..	2	2	2	3
<b>Total ... ..</b>	<b>8</b>	<b>383</b>	<b>38</b>	<b>890</b>

Of the 8 persons killed and 383 injured, 140 passengers and 7 servants were injured in collisions between passenger trains or parts of passenger trains; 61 passengers and 15 servants were injured in collisions between passenger trains and goods or mineral trains, light engines, or other moving vehicles; 1 servant was killed and 37 servants and 1 other person injured in collisions between goods trains, light engines, or other moving vehicles; 1 passenger was injured in a collision between a train and vehicles standing foul of the line; 3 servants were killed and 37 passengers and 2 servants were injured in collisions between trains and buffer-stops or vehicles at rest, caused by trains running into stations at too high a speed; 13 passengers and 9 servants were injured in collisions between trains and buffer-stops, &c., from causes other than the above; 24 passengers and 4 servants were injured by passenger trains or parts of passenger trains leaving the rails; 8 servants were injured by goods trains or parts of goods trains, light engines, &c., leaving the rails; 2 persons were killed and 3 passengers, 8 servants, and 1 other person were injured by trains running through gates at level-crossings or into other obstacles; 2 servants were killed and 4 injured by the bursting of the boilers, &c., of engines; 7 servants were injured by accidents arising from the failure of rolling-stock (wheels, tyres, axles, &c.); and 1 servant was injured in an accident not included in the above.

Altogether, including accidents in which no personal injury was sustained, there were reported during the nine months, 33 collisions between passenger trains or parts of passenger trains; 34 collisions between passenger trains and goods or mineral trains, light engines, &c.; 34 collisions between goods trains, parts of goods trains, light engines, &c.; 4 collisions between trains and vehicles standing foul of the line; 24 collisions between trains and buffer-stops, &c., of which 12 were caused by trains running into stations or sidings at too high a speed, and 12 were due to other causes; 47 cases of passenger trains or parts of passenger trains leaving the rails; 13 cases of goods, &c., trains or parts of goods trains leaving the rails; 151 cases of trains running through gates at level-crossings or into other obstructions\*; 16 cases of fires in trains or vehicles; and 1 case coming under the heading of miscellaneous accidents to trains.

\* During the nine months, 29 horses, 5 donkeys, 23 beasts and cows, 108 sheep, 2 dogs, and 3 pigs were run over and killed; and 3 horses and 3 beasts were injured.

The following accidents to, and failures of, rolling-stock and permanent-way were also reported, viz.:—4 cases of the bursting of boilers, tubes, &c., of engines; 2 cases of the failure of machinery, springs, &c., of engines; 152 failures of tyres; 1 failure of a wheel; 129 failures of axles; 6 failures of couplings; 236 failures of rails; 7 cases of flooding of the permanent-way; 5 slips in cuttings or embankments; and 5 fires at stations.

Of the 152 tyres which failed, 7 were engine-tyres, 1 was a tender-tyre, 2 were coach-tyres, 17 were van-tyres, and 125 were waggon-tyres; of the waggons, 100 belonged to owners other than the Railway Companies; 97 of the tyres were made of iron and 55 of steel; 2 of the tyres were fastened to the wheel by Gibson's patent method; 4 by Mansell's patent method, 1 of which left the wheel when it failed; 139 by bolts and screws, 3 of which left their wheels when they failed; and 7 by other methods, 1 of which left the wheel when it failed; 11 tyres broke at screw or bolt holes, 45 in the solid, and 96 split longitudinally or bulged.

Of the 129 axles which failed, 87 were engine axles, viz., 69 crank or driving, and 18 leading or trailing; 7 were tender axles; and 35 were waggon axles; of the waggons, 15 belonged to owners other than the Railway Companies. Of the 69 crank or driving axles, 16 were made of iron and 53 of steel. The average mileage of 15 of the crank or driving axles made of iron was 213,984 miles, and of 51 of the crank or driving axles made of steel 271,150 miles.

Of the 236 rails which broke, 57 were double-headed, 152 were single-headed, 1 was a bridge rail, and 26 were Vignoles' rails; of the double-headed rails, 25 had been turned. All of these rails were made of steel.

---

## II.—ACCIDENTS TO PASSENGERS FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., INCLUDING ACCIDENTS FROM THEIR OWN WANT OF CAUTION OR MISCONDUCT; ACCIDENTS TO PERSONS PASSING OVER LEVEL-CROSSINGS; TRESPASSERS; AND OTHERS.

Of the 468 persons killed and 1,420 injured under this heading, 84 of the killed and 1,163 of the injured were passengers. Of these, 23 were killed and 103 injured by falling between carriages and platforms, viz., 14 killed and 55 injured when getting into, and 9 killed and 48 injured when alighting from, trains; 7 were killed and 548 injured by falling on to platforms, ballast, &c., viz., 68 injured when getting into, and 7 killed and 480 injured when alighting from, trains; 12 were killed and 6 injured by falling off platforms and being struck or run over by trains; 14 were killed and 8 injured whilst passing over the line at stations, viz., 6 killed and 6 injured at stations where there is neither a subway or footbridge, and 8 killed and 2 injured at stations where there is neither a subway nor footbridge; 264 were injured by the closing of carriage doors; 16 were killed and 55 injured by falling out of carriages during the travelling of trains; and 12 were killed and 179 injured from other causes connected with the movement of trains or railway vehicles. 42 persons were killed and 22 injured whilst passing over railways at level-crossings, viz., 13 killed and 10 injured at public level-crossings, 12 killed and 9 injured at occupation-crossings, and 17 killed and 3 injured at foot-crossings. 211 persons were killed and 114 injured when trespassing on the railways; 103 persons committed suicide on railways, and 14 persons were injured while apparently attempting to commit suicide; 14 persons were killed and 88 injured while on business at stations and sidings; and of other persons not specifically classed, 14 were killed and 19 injured.

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## III.—ACCIDENTS TO SERVANTS IN THE EMPLOY OF RAILWAY COMPANIES OR CONTRACTORS, CAUSED BY THE TRAVELLING OF TRAINS OR THE MOVEMENT OF VEHICLES USED EXCLUSIVELY UPON RAILWAYS.

During the nine months there were 345 servants of companies or contractors reported as having been killed and 3,006 injured, in addition to those included in Division I. 9 were killed and 411 injured whilst coupling or uncoupling vehicles; 3 were

killed and 27 injured by coming in contact, whilst riding on vehicles during shunting, with other vehicles, &c., standing on adjacent lines; 16 were injured whilst passing over or standing upon buffers during shunting; 1 was killed and 179 injured in getting on or off, or by falling off, engines, waggons, &c., during shunting; 6 were killed and 290 injured whilst braking, spragging, or chocking wheels; 1 was killed and 77 injured whilst attending to ground-points; 10 were killed and 324 injured whilst moving vehicles by capstans, turntables, props, horses, &c., during shunting; and 27 were killed and 364 injured by various other accidents during shunting operations; 15 were killed and 61 injured by falling off engines, &c., during the travelling of trains; 9 were killed and 207 injured whilst getting on or off engines, vans, &c., during the travelling of trains; 8 were killed and 49 injured by coming in contact with over-bridges or erections on the sides of the line during the travelling of trains; 270 were injured whilst attending to the machinery, &c., of engines in steam; 64 were killed and 92 injured whilst working on the permanent-way, sidings, &c.; 3 were killed and 2 injured whilst attending to gates at level crossings; 109 were killed and 213 injured whilst walking, crossing, or standing on the line on duty, of whom 79 were killed and 175 injured in and about stations, and 30 were killed and 38 injured at other parts of the line; 13 were killed and 83 injured by being caught between vehicles; 7 were killed and 48 injured by falling or being caught between trains and platforms, walls, &c.; 30 were killed and 20 injured whilst walking, on the line on the way home or to work; and 30 were killed and 272 injured from various other causes.

Altogether, the number of persons killed and injured on railways in the United Kingdom in the course of public traffic, during the nine months ending 30th September 1901, as reported to the Board of Trade, was as follows:—

	Killed.	Injured.	Total for the corresponding period in 1900.		Increase.		Decrease.	
			Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers:								
From accidents to trains, rolling-stock, permanent-way, &c.	—	279	16	755	—	—	16	476
By accidents from other causes ..	84	1,163	92	1,087	—	76	8	—
Servants of companies or contractors:*								
From accidents to trains, rolling-stock, permanent-way, &c.	6	102	20	132	—	—	14	30
By accidents from other causes ...	345	3,005	432	3,295	—	—	87	290
Other Persons:								
From accidents to trains, &c. ...	2	2	2	3	—	—	—	1
Persons passing over railways at level-crossings.	42	22	50	27	—	—	8	5
Trespassers (including suicides) ...	314	128	298	130	16	—	—	2
Persons on business at stations, &c., and other persons not coming in above classifications.	28	107	35	104	—	3	10	—
Total ... ..	821	4,808	948	5,533	—	—	127	725

\* Of contractors' servants 13 were killed and 26 injured.

In addition to the above, the Railway Companies have reported to the Board of Trade, in pursuance of the 6th Section of the Regulation of Railways Act, 1871, the following accidents which occurred upon their premises, but in which the movement of vehicles used exclusively upon railways was not concerned, namely:—10 passengers killed and 209 injured whilst ascending or descending steps at stations; 77 injured by being struck by barrows, falling over packages, &c., on station platforms; 3 killed and 62 injured by falling off platforms; and 3 killed and 132 injured from other causes. Of servants of companies or contractors, 5 were killed and 1,377 injured whilst loading, unloading, or sheeting waggons; 1 was killed and 385 injured whilst moving or carrying goods in stations or sheds; 2 killed and 158 injured whilst working at cranes or capstans; 427 injured by the falling of waggon-doors, lamps, bales of goods, &c.; 1 killed and 991 injured whilst attending to engines at rest in sheds, &c.; 1 killed and 593 injured by falling off, or when getting on or off, engines or vehicles at rest; 160 injured by

falling off platforms on to the ballast ; 13 killed and 268 injured by falling off ladders, scaffolds, &c. ; 480 injured by stumbling whilst walking on the line ; 1 killed and 50 injured by being trampled on or kicked by horses whilst engaged in railway work ; 10 injured by being struck by articles thrown from passing trains ; 1 killed and 572 injured by the falling of rails, sleepers, &c., when at work on the line ; 4 killed and 830 injured in other ways when at work on the line or in sidings ; and 10 killed and 1,262 injured from various other causes. Of persons transacting business on the companies' premises, 9 were killed and 248 injured ; and of other persons not coming within the above classifications, 13 were killed and 82 injured ; making a total in this class of accidents of 77 persons killed and 8,373 injured.

Thus the total number of personal accidents reported to the Board of Trade by the several Railway Companies during the nine months amounts to 898 persons killed and 13,181 injured.

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**TABLES OF ACCIDENTS.**

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## N O T E.

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All accidents which occur in the working of railways or on railway premises to persons other than servants of the companies (described in the following Tables as "Passengers" and "Other Persons") are required to be reported to the Board of Trade, however slight the injuries may be ; but, as regards servants of the companies, only those accidents which prevent the servant injured from being employed for five hours on his ordinary work on any one of the three working days next after the accident are reported.

The following Tables therefore show the total number of persons other than servants of the companies injured from accidents arising in the working of railways or on railway premises, but only the number of servants whose injuries prevented them working for five hours on any one of the three working days next after the accident.

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TABLE No. 1.

Summary Statement of the Number of Passengers, Servants of the Companies and of Contractors, and other Persons reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, during the Nine Months ending 30th September 1901; with corresponding figures for the UNITED KINGDOM for the Nine Months ending 30th September 1900.

	1901.								1900.	
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.		UNITED KINGDOM.		UNITED KINGDOM.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	...	233	...	41	...	5	...	279	16	755
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	63	1,078	12	77	9	8	84	1,163	92	1,087
<b>TOTAL OF PASSENGERS ...</b>	<b>63</b>	<b>1,311</b>	<b>12</b>	<b>118</b>	<b>9</b>	<b>13</b>	<b>84</b>	<b>1,442</b>	<b>108</b>	<b>1,842</b>
<b>SERVANTS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	3	78	...	18	3	6	6	102	20	132
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	268	2,673	65	286	12	46	345	3,005	432	3,295
<b>TOTAL OF SERVANTS ...</b>	<b>271</b>	<b>2,751</b>	<b>65</b>	<b>304</b>	<b>15</b>	<b>52</b>	<b>351</b>	<b>3,107</b>	<b>452</b>	<b>3,427</b>
<b>OTHER PERSONS :—</b>										
In accidents to trains, (See Table No. 2.)	2	1	...	1	...	...	2	2	2	3
While passing over railways at level crossings. (See Table No. 3.)	35	21	5	...	2	1	42	22	50	27
While trespassing on line. (See Table No. 3.)	153	82	48	30	10	2	211	114	212	122
Suicides and attempted suicides. (See Table No. 3.)	96	10	6	4	1	...	103	14	86	8
On business at stations and sidings. (See Table No. 3.)	11	70	3	16	...	2	14	88	21	82
Miscellaneous (not included above). (See Table No. 3.)	10	15	3	3	1	1	14	19	17	22
<b>TOTAL OF OTHER PERSONS</b>	<b>307</b>	<b>199</b>	<b>65</b>	<b>54</b>	<b>14</b>	<b>6</b>	<b>386</b>	<b>259</b>	<b>388</b>	<b>264</b>
<b>GRAND TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.</b>	<b>641</b>	<b>4,261</b>	<b>142</b>	<b>476</b>	<b>38</b>	<b>71</b>	<b>821</b>	<b>4,808</b>	<b>948</b>	<b>5,533</b>

Note.—For the number of persons killed or injured on railway premises otherwise than through accidents to trains or the movement of railway vehicles, see Tables 3, 9, and 10.

## NUMBER OF PERSONS KILLED OR

TABLE No. 2.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, in the different CLASSES of

CLASS OF ACCIDENT.	NUMBER OF PASSENGERS.								NUMBER OF SERVANTS.							
	England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
1. Collisions between passenger-trains or parts of passenger trains.	...	103	...	37	...	...	...	140	...	4	...	3	...	...	...	7
2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.	...	53	...	3	...	5	...	61	...	12	...	...	...	3	...	15
3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.	...	...	...	...	...	...	...	...	1	27	...	10	...	...	1	37
4. Collisions between trains and vehicles standing foul of the line.	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...
5. Collisions between trains and buffer-stops, or vehicles at rest :	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(a) From trains running into stations at too high a speed.	...	37	...	...	...	...	...	37	...	2	...	...	3	...	3	2
(b) From other causes ...	...	13	...	...	...	...	...	13	...	9	...	...	...	...	...	9
6. Trains coming in contact with projections from other trains running on parallel lines.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7. Passenger trains or parts of passenger trains leaving the rails.	...	23	...	1	...	...	...	24	...	1	...	3	...	...	...	4
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	...	...	...	...	...	...	...	...	...	8	...	...	...	...	...	8
9. Trains running through gates at level-crossings, or into other obstacles.	...	3	...	...	...	...	...	3	...	5	...	1	...	2	...	8
10. The bursting of boilers or tubes, &c., of engines.	...	...	...	...	...	...	...	...	2	3	...	...	...	1	2	4
11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines).	...	...	...	...	...	...	...	...	...	6	...	1	...	...	...	7
12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13. Fires in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14. Other accidents	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
TOTAL	...	233	...	41	...	5	...	279	3	78	...	18	3	6	6	102

N.B.—The Board of Trade state the cause of accident as returned by the Companies, but do not guarantee



## INJURED IN ACCIDENTS TO TRAINS.

TABLE NO. 2.

reported to the BOARD of TRADE by RAILWAY COMPANIES, as having been KILLED or INJURED ACCIDENTS to TRAINS, during the Nine Months ending 30th September 1901.

NUMBER OF OTHER PERSONS.								TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.								CLASS OF ACCIDENT.
England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.		
Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	
...	...	...	...	...	...	...	...	..	107	...	40	...	...	...	147	1. Collisions between passenger trains or parts of passenger trains.
...	...	...	...	...	...	...	...	...	65	...	3	...	8	...	76	2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.
...	...	...	1	...	...	...	1	1	27	...	11	...	...	1	38	3. Collisions between goods trains or parts of goods trains light engines, or other moving vehicles.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	4. Collisions between trains and vehicles standing foul of the line.
...	...	...	...	...	...	...	...	...	39	...	...	3	...	3	39	5. Collisions between trains and buffer-stops, or vehicles at rest : (a) From trains running into stations at too high a speed.
...	...	...	...	...	...	...	...	...	22	...	...	...	...	...	22	(b) From other causes.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6. Trains coming in contact with projections from other trains running on parallel lines.
...	...	...	...	...	...	...	...	...	24	...	4	...	...	...	28	7. Passenger trains or parts of passenger trains leaving the rails.
...	...	...	...	...	...	...	...	...	8	...	...	...	...	...	8	8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.
2	1	...	...	...	...	2	1	2	9	...	1	...	2	2	12	9. Trains running through gates at level-crossings, or into other obstacles.
...	...	...	...	...	...	...	...	2	3	...	...	...	1	2	4	10. The bursting of boilers or tubes, &c., of engines.
...	...	...	...	...	...	...	...	...	6	...	1	...	...	...	7	11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13. Fires in trains.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	14. Other accidents.
2	1	...	1	...	...	2	2	5	312	...	60	3	11	8	383	TOTAL.

or otherwise adopt the statement, except in cases where an official inquiry has been held.

## NUMBER OF PERSONS KILLED OR INJURED FROM THE RUNNING

TABLE No. 3.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS or by the

	ENGLAND AND WALES.		SCOTLAND.	
	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>				
1. From falling between trains and platforms :				
(1) When entering trains ... ..	12	49	2	6
(2) When alighting from trains ... ..	6	41	1	7
2. From falling on to the platform, ballast, &c. :				
(1) When entering trains ... ..	...	62	...	5
(2) When alighting from trains ... ..	4	464	1	16
3. From falling off platforms and being struck or run over by trains.	8	5	2	1
4. Whilst crossing the line at stations :				
(1) Where there is either a subway or footbridge	5	5	...	1
(2) Where there is neither a subway nor footbridge	7	2	1	...
5. By the closing of carriage doors ... ..	...	243	...	21
6. From falling out of carriages during the running of trains.	11	42	4	7
7. By other accidents ... ..	10	165	1	13
TOTAL OF PASSENGERS ... ..	63	1,078	12	77
<b>SERVANTS :—</b>				
By accidents occurring during shunting operations, viz :				
1. Whilst coupling or uncoupling vehicles ...	8	363	...	37
2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines.	3	19	...	8
3. While passing over, under, or standing on buffers.	...	7	...	9
4. When getting on or off, or falling off engines, waggons, &c.	1	153	...	25
5. Whilst braking, spragging, or chocking wheels	6	272	...	15
6. Whilst attending to ground-points ... ..	1	65	...	12
7. Whilst moving vehicles by capstans, turntables, props, levers, &c.	7	308	3	11
8. By other accidents not included in the preceding.	25	329	1	33
9. From falling off trains, engines, &c., in motion ...	10	50	3	7
10. When getting on or off engines, vans, &c., during the running of trains.	3	184	3	17
11. By coming in contact with over-bridges or erections on the sides of the line.	5	39	2	8
12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion.	...	249	...	20
13. Whilst working on the permanent-way, sidings, &c.	46	82	17	10
14. Whilst attending to gates at level-crossings ...	1	1	2	...
15. Whilst walking, crossing, or standing on the line on duty :				
(1) At stations ... ..	68	152	10	19
(2) At other parts of the line ... ..	20	32	10	6
16. From being caught between vehicles ... ..	11	68	2	15
17. From falling or being caught between trains and platforms, walls, &c.	6	39	1	7
18. Whilst walking, &c., along the line to or from work	25	18	4	2
19. Miscellaneous ... ..	22	243	7	25
TOTAL OF SERVANTS ... ..	268	2,673	65	286
<b>OTHER PERSONS :—</b>				
1. Whilst passing over railways at level-crossings ...	35	21	5	...
2. Whilst trespassing on line ... ..	153	82	48	30
3. Suicides and attempted suicides ... ..	96	10	6	4
4. On business at stations and sidings ... ..	11	70	3	16
5. Miscellaneous (not included above) ... ..	10	15	3	3
TOTAL OF OTHER PERSONS ... ..	305	198	65	13
GRAND TOTAL ... ..	636	3,949	142	416

N.B.—The Board of Trade state the cause of the accident as returned by the Companies, but do not

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 3.

reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED  
MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September, 1901.

IRELAND.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
...	...	14	55	<b>PASSENGERS :—</b>  1. From falling between trains and platforms : (1) When entering trains. (2) When alighting from trains. 2. From falling on to the platform, ballast, &c. : (1) When entering trains. (2) When alighting from trains. 3. From falling off platforms and being struck or run over by trains. 4. Whilst crossing the line at stations : (1) Where there is either a subway or footbridge. (2) Where there is neither a subway nor footbridge. 5. By the closing of carriage doors. 6. From falling out of carriages during the running of trains. 7. By other accidents.
2	...	9	48	
...	1	...	68	
2	...	7	40	
2	...	12	6	
1	...	6	6	
...	...	8	2	
...	...	...	264	
1	6	16	55	
1	1	12	179	
9	8	84	1,163	<b>TOTAL OF PASSENGERS.</b>
1	11	9	411	<b>SERVANTS :—</b>  By accidents occurring during shunting operations, viz. : 1. Whilst coupling or uncoupling vehicles. 2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines. 3. While passing over, under, or standing on buffers. 4. When getting on or off, or falling off engines, waggons, &c. 5. Whilst braking, spragging, or chocking wheels. 6. Whilst attending to ground-points. 7. Whilst moving vehicles by capstans, turn-tables, props, levers, &c. 8. By other accidents not included in the preceding. 9. From falling off trains, engines, &c., in motion. 10. When getting on or off engines, vans, &c., during the running of trains. 11. By coming in contact with over-bridges or erections on the sides of the line. 12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion. 13. Whilst working on the permanent-way, sidings, &c. 14. Whilst attending to gates at level-crossings. 15. Whilst walking, crossing, or standing on the line on duty : (1) At stations. (2) At other parts of the line. 16. From being caught between vehicles. 17. From falling or being caught between trains and platforms, walls, &c. 18. Whilst walking, &c., along the line to or from work. 19. Miscellaneous.
...	...	3	27	
...	...	...	16	
...	1	1	179	
...	3	6	290	
...	...	1	77	
...	5	10	324	
1	2	27	364	
2	4	15	61	
3	6	9	207	
1	2	8	49	<b>TOTAL OF SERVANTS.</b>  <b>OTHER PERSONS :—</b>  1. Whilst passing over railways at level-crossings. 2. Whilst trespassing on line. 3. Suicides and attempted suicides. 4. On business at stations and sidings. 5. Miscellaneous (not included above).
...	1	..	270	
1	...	64	92	
...	1	3	2	
1	4	79	175	
...	...	30	38	
...	...	13	83	
...	2	7	48	
1	...	30	20	
1	4	30	272	
12	46	345	3,005	<b>TOTAL OF OTHER PERSONS.</b>
2	1	42	22	<b>GRAND TOTAL.</b>
10	2	211	114	
1	...	103	14	
...	2	14	88	
1	1	14	19	
14	6	384	257	
35	60	813	4,425	

guarantee or otherwise adopt the statement, except in cases where an official inquiry has been held.

TABLE No. 4.

NUMBER of PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the

NAME OF COMPANY.	1		2		3		4		5				6		7		8	
	Collisions between Passenger Trains or Parts of Passenger Trains.		Collisions between Passenger Trains and Goods or Mineral Trains, Light-Engines, &c.		Collisions between Goods Trains or Parts of Goods Trains, Light-Engines, &c.		Collisions between Trains and Vehicles standing foul of the Line.		Collisions between Trains and Buffer-Stops, or Vehicles at rest.				Trains coming in Contact with Projections from other Trains running on Parallel Lines.		Passenger Trains or Parts of Passenger Trains leaving the Rails.		Goods Trains or Parts of Goods Trains, Light-Engines, &c. leaving the Rails.	
	(a.) From Trains running into Stations at too high a speed.	(b.) From other Causes.																
	K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
ENGLAND AND WALES.																		
Barry ... ..	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Carlisle Goods Traffic Committee.	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ... ..	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Central ... ..	...	...	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Eastern ... ..	...	11	...	4	...	1	...	...	...	...	5	...	...	...	7	...	...	...
Great Northern ... ..	...	7	...	1	...	3	...	...	...	3	...	4	...	...	3	...	...	...
Great Western ... ..	...	...	...	2	...	...	...	...	...	...	...	1	...	...	...	...	3	...
Hull, Barnsley and West Riding Junction.	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Lancashire and Yorkshire...	...	...	...	2	...	2	...	...	...	...	2	...	...	...	...	...	...	...
Lancashire and Yorkshire and London and North-Western Joint.	...	4	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...
London and North-Western London and North-Western and Midland Joint.	...	9	...	...	...	...	...	...	...	2	...	8	...	...	2	...	1	...
London and South-Western London, Brighton, and South Coast.	...	22	...	23	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Manchester, South Junction and Altrincham.	...	1	...	1	...	4	...	1	...	...	...	...	...	...	...	...	1	...
Metropolitan ... ..	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland ... ..	...	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Midland and South-Western Junction.	...	...	...	6	...	5	...	...	...	19	...	...	...	...	8	...	...	...
North-Eastern ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North Staffordshire ... ..	...	28	...	9	1	2	...	...	...	12	...	1	...	...	...	...	...	1
Rother Valley ... ..	...	...	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South-Eastern and Chatham	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
South Wales Mineral ... ..	...	...	...	...	...	...	...	...	...	2	...	...	...	...	1	...	...	...
Taff Vale ... ..	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Wigan Junction, ... ..	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES	...	107	...	65	1	27	...	1	...	39	...	22	...	...	24	...	8	...
SCOTLAND.																		
Caledonian ... ..	...	22	...	2	...	9	...	...	...	...	...	...	...	...	...	...	...	...
Dumbarton and Balloch Joint.	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great North of Scotland ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North British ... ..	...	18	...	...	...	2	...	...	...	...	...	...	...	...	4	...	...	...
TOTAL, SCOTLAND	...	40	...	3	...	11	...	...	...	...	...	...	...	...	4	...	...	...
IRELAND.																		
Great Northern ... ..	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Southern and Western	...	...	...	6	...	...	...	...	3	...	...	...	...	...	...	...	...	...
TOTAL, IRELAND	...	...	...	8	...	...	...	...	3	...	...	...	...	...	...	...	...	...
TOTAL, UNITED KINGDOM	...	147	...	76	1	38	...	1	3	39	...	22	...	...	28	...	8	...

NOTE.—In the above Table the persons killed and injured from accidents are entered against the Company on whose  
 \* Killed.  
 † Injured.

## INJURED IN ACCIDENTS TO TRAINS.

TABLE. No. 4.

INJURED in the different CLASSES of ACCIDENTS occurring on the LINES of the several RAILWAY COMPANIES COMPANIES during the Nine Months ending 30th September 1901.

9 Trains running through Gates at Level Crossings or into other Obstacles.		10 The bursting of Boilers or Tubes, &c., of Engines.		11 Accidents arising from the Failure of Rolling-Stock (including Failure of Wheels, Tyres, Axles, &c.).		12 Accidents arising from the Failure of Permanent-Way (including Failure of Tunnels, Bridges, Rails, &c.).		13 Fires in Trains.		14 Other Accidents.		Total Number of Persons of all Classes.		Number of Passengers and others.		Number of Servants.		NAME OF COMPANY.
K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	
ENGLAND AND WALES.																		
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Barry.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Carlisle Goods Traffic Committee.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Cheshire Lines.
...	...	...	...	...	...	...	...	...	...	...	...	...	5	...	5	...	...	Furness.
...	...	...	...	...	...	...	...	...	...	...	...	...	7	...	6	...	1	Great Central.
...	...	...	...	...	...	...	...	...	...	...	...	...	28	...	27	...	1	Great Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	21	...	15	...	6	Great Northern.
...	2	...	...	...	...	...	...	...	...	...	...	...	8	...	3	...	5	Great Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Hull, Barnsley and West Riding Junction.
...	3	2	...	...	...	...	...	...	...	1	2	10	...	1	...	2	9	Lancashire and Yorkshire.
...	...	...	...	...	...	...	...	...	...	...	...	...	7	...	7	...	...	Lancashire and Yorkshire and London and North-Western Joint.
...	...	...	1	...	1	...	...	...	...	...	...	...	23	...	8	...	15	London and North-Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	9	...	5	...	4	London and North-Western and Midland Joint.
2	2	...	...	...	...	...	...	...	...	...	...	2	48	2	47	...	1	London and South-Western.
...	...	...	...	...	1	...	...	...	...	...	...	...	9	...	2	...	7	London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	Manchester, South Junction and Altrincham.
...	...	...	...	...	...	...	...	...	...	...	...	...	16	...	15	...	1	Metropolitan.
...	...	...	...	...	2	...	...	...	...	...	...	...	40	...	27	...	13	Midland.
...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	Midland and South-Western Junction.
...	...	...	...	...	2	...	...	...	...	...	...	1	55	...	49	1	6	North-Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	8	...	8	...	...	North Staffordshire.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Rother Valley.
...	...	2	...	...	...	...	...	...	...	...	...	...	5	...	3	...	2	South-Eastern and Chatham.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	South Wales Mineral.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Taff Vale.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	Wigan Junction.
2	9	2	3	...	6	...	...	...	...	...	1	5	31	2	234	3	78	TOTAL ENGLAND AND WALES.
SCOTLAND.																		
...	...	...	...	...	...	...	...	...	...	...	...	...	33	...	21	...	12	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Dumbarton and Balloch Joint.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Great North of Scotland.
...	...	...	...	...	1	...	...	...	...	...	...	...	25	...	20	...	5	North British.
...	1	...	...	...	1	...	...	...	...	...	...	...	60	...	42	...	18	TOTAL, SCOTLAND.
IRELAND.																		
...	2	...	1	...	...	...	...	...	...	...	...	...	5	...	...	...	5	Great Northern.
...	...	...	...	...	...	...	...	...	...	...	...	3	6	...	5	3	1	Great Southern and Western.
...	2	...	1	...	...	...	...	...	...	...	...	3	11	...	5	3	6	TOTAL, IRELAND.
2	12	2	4	...	7	...	...	...	...	...	1	8	383	2	281	6	102	TOTAL, UNITED KINGDOM.

lines the accidents occurred, except in cases of injuries arising from the accidents enumerated in Columns Nos. 10 and 11.

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several  
during the Nine Months

## A. PASSENGERS.

NAME OF COMPANY.	1				2				3				4				5		6		7		Total.			
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.				Whilst crossing the line at Stations.				By the closing of Carriage Doors.		From falling out of Carriages during the running of Trains.		By other Accidents					
	(a)		(b)		(a)		(b)						(a)		(b)											
	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.																				
	K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.		
ENGLAND AND WALES.																										
Central London .. ..		1						1																2		
Cheshire Lines .. ..													1					1					1	1		
City and South London ...		1																						1		
Furness .. ..								2								4		1		1				8		
Garstang and Knot End ...								1																1		
Great Central .. ..		3		2				7				1				5			1	3	1			21		
Great Eastern .. ..	2	4		4		7		38	2		1					5		2	1	18	6			78		
Great Northern .. ..		2		3		2	1	7								2	2	2	1	4	4			22		
Great Western .. ..	1	4		1				30	1	1	2		2			9	3	5		12	9			62		
Lancashire and Yorkshire ...	2	3	1	1				8								9		2		2	3			25		
Lancashire and Yorkshire and London and North-Western Joint.						1		3								2				2				8		
Lancashire, Derbyshire, and East Coast.								1																1		
Liverpool Overhead... ..						1																		1		
London and India Docks ...		1																						1		
London and North-Western	3	3	2	5		4		91	1	2	2		3			103	1	4	2	40	14			252		
London and North-Western and Cockermouth Keswick and Penrith Joint.								1																1		
London and North-Western and Great Western Joint.				1				5								6		1		3				16		
London and North-Western and Midland Joint.		1		1					1							1				1	1			4		
London and North-Western and North Staffordshire Joint.						1																		1		
London and South-Western		6	1	4		6	2	110								16		5		14	3			161		
London and South-Western and London, Brighton and South Coast Joint.								1																1		
London, Brighton, and South Coast.				3		2	1	13	1			1				2		1		1	2			23		
London, Tilbury, and South-end.		1				9		12				1				1		2		3				29		
Mersey .. ..								2										2						4		
Metropolitan ... ..	1	1		3		5		3											1	2	2			14		
Metropolitan and Great Western Joint.						1		1								3				1				6		
Metropolitan and Metropolitan District Joint.		2						1		1										1				5		
Metropolitan District						4		10								2								16		
Midland .. ..		3	2	3		4		28				1		1		28	4	2	1	26	7			96		
Midland and Great Northern Joint.																		1						1		
Midland and Lancashire and Yorkshire Joint.								2																2		
Midland and North-Eastern Joint.																				1				1		

\* Killed.

NOTE.—In the above Table the persons killed and injured  
† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September, 1901.

## A. PASSENGERS.

NAME OF COMPANY.	1				2				3				4				5		6		7		Total.	
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.				Whilst crossing the Line at Stations.				By the closing of Carriage Doors.		From falling out of Carriages during the running of Trains.		By other Accidents.			
	(a)		(b)		(a)		(b)				(a)		(b)											
	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.		
K.*	L†	R.	I.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.			
ENGLAND AND WALES— cont.																								
Neath and Brecon ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1			
North and South-Western Junction.	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	5			
North-Eastern ...	...	1	...	4	...	...	21	...	...	...	1	1	1	...	28	1	6	...	13	2	75			
North London ...	...	2	...	2	...	10	...	32	...	1	...	...	...	...	10	...	1	1	9	1	67			
Nottingham Joint Station...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1			
Oldham, Ashton - under-Lyne and Guide Bridge Junction.	...	...	...	...	...	2	...	...	...	...	...	...	...	...	1	...	...	...	...	...	3			
Rhondda and Swansea Bay Rhymney ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1			
Sheffield and Midland Joint	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1			
Somerset and Dorset Joint...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2			
South-Eastern and Chatham Taff Vale ...	...	...	...	2	...	1	...	18	1	...	...	...	...	...	1	...	2	2	4	3	23			
Tottenham and Forest Gate Joint.	...	...	...	1	...	...	1	...	...	...	...	...	...	...	1	...	...	...	1	...	4			
Tottenham and Hampstead Joint.	...	...	...	...	...	1	...	6	...	...	...	...	...	...	1	...	...	...	2	...	10			
Waterloo and City ...	...	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9			
West London Extension Joint	...	...	...	...	...	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	3			
Wirral ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1			
Wrexham, Mold and Con-nah's Quay.	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	1	1			
TOTAL, ENGLAND AND WALES ...	12	49	6	41	...	62	4	464	8	5	5	5	7	2	...	243	11	42	10	165	63	1,078		
SCOTLAND.																								
Caledonian ...	1	4	...	2	...	2	1	7	2	...	...	...	...	...	10	1	2	...	4	5	31			
Dumbarton and Balloch Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1			
Glasgow and Paisley Joint...	...	...	...	2	...	...	...	...	1	...	...	...	...	...	4	...	...	...	...	...	7			
Glasgow and South-Western	...	...	...	1	...	...	1	...	...	...	...	...	...	...	1	1	...	1	2	2	5			
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	1	...	...	...	...	1	...	...	2	...	...	...	1	1	4			
Glasgow District Subway ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1			
Great North of Scotland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	1	2			
Highland ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	2			
North British ...	1	2	1	2	...	2	...	7	...	...	...	1	...	...	4	1	2	...	4	3	24			
TOTAL, SCOTLAND ...	2	6	1	7	...	5	1	16	2	1	...	1	1	...	21	4	7	1	13	12	77			
IRELAND.																								
Belfast and County Down...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...			
Belfast and Northern Counties.	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1			
Cavan and Leitrim ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...			
Dublin, Wicklow and Wex-ford.	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...	...	1	...	...	3	...			
Great Northern ...	...	...	1	...	...	...	1	...	1	...	...	...	...	...	...	1	3	...	...	4	3			
Great Southern and Western	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	2			
Midland Great Western ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2			
TOTAL, IRELAND ...	...	...	2	...	...	1	2	...	2	...	1	...	...	...	...	1	6	1	1	9	8			
TOTAL, UNITED KINGDOM...	14	55	9	48	...	68	7	480	12	6	6	6	8	2	...	264	16	55	12	179	84	1,163		

are entered against the Company on whose line the injury was received.

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Nine Months

## B. SERVANTS of COMPANIES and CONTRACTORS.

NAME OF COMPANY,	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	Whilst coupling or uncoupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon, Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or chocking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.		By other Accidents not included in the preceding.		K.	I.	K.	I.
ENGLAND AND WALES.																				
Alexandra (Newport) Dock ...	...	...	...	...	1	...	2	...	1	...	...	...	...	...	...	...	...	...	...	...
Barry ...	2	3	...	...	...	...	2	...	4	...	1	...	1	...	...	...	...	...	...	1
Brecon and Merthyr ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambrian ...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	1
Cardiff ...	1	1	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Central London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	...	1	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...	1
City and South London ...	...	1	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...
Corris ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
East and West Junction ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
East London Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ...	...	5	...	...	...	...	1	...	...	...	1	...	1	...	2	...	...	...	...	1
Great Central ...	...	10	...	1	...	...	7	1	14	...	2	...	6	...	11	1	2	...	...	11
Great Eastern ...	...	19	...	2	...	...	3	1	14	...	4	2	29	2	25	...	2	...	...	8
Great Northern ...	...	26	...	2	...	...	9	...	18	...	1	...	19	5	17	...	1	...	...	12
Great Northern and Great Eastern Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Great Western ...	1	37	1	2	...	...	1	18	...	22	1	8	2	26	4	40	2	3	...	17
Hull, Barnsley, and West Riding Junction.	...	1	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Isle of Wight ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Isle of Wight Central... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire ...	...	27	...	1	...	...	9	2	24	...	3	...	29	2	22	1	6	1	...	1
Lancashire and Yorkshire and London and North-Western Joint.	...	2	...	...	...	...	1	...	1	...	...	...	9	...	1	...	...	...	...	2
Lancashire, Derbyshire and East Coast.	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	1
Liverpool, St. Helens and South Lancashire.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and North-Western ...	...	9	1	2	...	...	22	1	71	...	16	...	97	6	80	...	11	...	...	35
London and North-Western and Great Western Joint.	...	3	...	...	...	...	...	...	2	...	...	...	3	...	4	...	...	...	...	1
London and North-Western and Midland Joint.	...	1	...	...	...	...	2	...	...	...	...	...	1	...	...	...	...	...	...	...
London and North-Western and North Staffordshire Joint.	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
London and South-Western ...	...	19	...	...	...	...	5	1	12	...	1	1	11	...	10	...	2	...	...	8
London and South Western and London, Brighton, and South Coast Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London, Brighton, and South Coast	...	11	...	2	...	...	1	...	5	...	...	...	11	...	10	2	3	1	...	6

\* Killed.

† Injured.



## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE NO. 5—*continued.*RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September 1901—*continued.*

## B. SERVANTS of COMPANIES and CONTRACTORS.

11.		12.		13.		14.		15.				16.		17.		18.		19.		TOTAL.	
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous			
								(a.) At Stations		(b.) At other Parts of the Line.											
K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	1	...	...	...	...	...	2	...	...	...	...	...	1	...	...	...	...	2	16
...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	1	...	...	...	...	1	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	1	1	7
...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	3	3
...	2	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	4
...	...	...	1	...	...	...	...	...	...	...	2	1	1	...	...	2	...	...	2	4	10
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	1	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
1	...	...	5	1	1	...	...	3	3	1	...	...	1	...	...	2	...	...	4	10	78
...	...	...	14	4	10	...	...	5	8	1	...	...	2	...	3	1	...	2	21	18	164
...	3	...	5	1	2	...	...	9	21	...	1	...	11	...	5	2	2	2	14	19	169
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
...	4	...	32	3	6	1	...	7	12	4	4	2	6	1	4	1	1	1	19	32	261
...	...	...	3	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1	...	3	6
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	1	...	16	7	13	...	...	6	16	...	1	...	4	...	1	...	2	1	26	20	202
...	...	...	...	1	...	...	...	...	2	...	...	1	2	...	...	...	...	...	...	2	20
...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...
1	7	...	78	6	8	...	...	5	15	3	5	...	9	...	2	4	3	3	50	30	610
...	...	...	...	1	2	...	...	...	2	1	...	...	1	...	...	...	...	1	3	3	21
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3
...	4	...	7	4	5	...	...	2	11	...	1	1	5	...	4	1	...	...	15	10	120
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	2	6	7	...	...	4	4	...	...	...	...	1	3	...	...	3	4	17	69

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Nine Months

## B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c. in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	Whilst coupling or uncoupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or chocking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.		By other Accidents not included in the preceding.		K.	L.	K.	L.
ENGLAND AND WALES—cont.																				
London, Tilbury, and Southend ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Maryport and Carlisle... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ... ..	...	2	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	1
Metropolitan District... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Midland... ..	1	31	...	1	...	1	...	32	...	37	...	10	...	30	2	47	1	4	...	41
Midland and Great Northern Joint	...	3	...	...	...	...	...	...	1	...	...	...	1	...	1	...	1	...	...	1
Midland and Great Western Joint ...	...	1	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	1
Midland and Lancashire and Yorkshire Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Midland and South-Western Junction	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Neath and Brecon ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Normanton Joint Station ... ..	...	1	...	...	...	...	...	...	2	...	...	...	6	...	1	...	...	...	...	...
North-Eastern ... ..	1	31	1	3	...	2	...	20	...	21	...	15	...	15	1	32	1	5	...	19
North-Eastern and London and North-Western Joint.	...	2	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	1
North London ... ..	...	2	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...
North Staffordshire ... ..	1	1	...	...	...	...	...	3	...	3	...	...	1	...	...	...	...	...	...	2
Otley and Ilkley Joint ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Port Talbot ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhymney ... ..	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Severn and Wye Joint ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Sheffield and Midland Joint ... ..	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
South-Eastern and Chatham... ..	1	18	...	...	...	...	...	5	...	2	...	...	1	5	1	6	...	6	...	4
Stalybridge Joint Station ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Swinton and Knottingley Joint ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Taff Vale ... ..	...	7	...	1	...	2	...	6	...	7	...	3	...	...	3	...	2	...	...	3
Wrexham, Mold and Connah's Quay	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Railway Clearing House ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL. ENGLAND AND WALES...	8	363	3	19	...	7	1	153	6	272	1	65	7	308	25	329	10	50	3	184

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued.*RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September 1901—*continued.*B. SERVANTS of COMPANIES and CONTRACTORS—*continued.*

11.		12.		13.		14.		15.				16.		17.		18.		19.		TOTAL.	
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.			
								(a.) At Stations.		(b.) At other Parts of the Line.											
K°	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
...	...	...	...	...	...	...	...	1	1	1	1	...	...	1	...	...	...	...	1	4	4
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	1	...	2	1	1	...	...	1	3	...	3	...	...	...	2	1	...	...	4	3	21
...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	3	...	7
3	6	...	47	4	7	...	...	11	24	2	7	3	14	...	4	5	5	4	32	36	380
...	...	...	1	...	1	...	...	...	...	...	...	1	3	...	1	...	...	...	1	1	15
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	3
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	2	1	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
...	7	...	18	3	8	...	...	8	8	1	5	...	6	...	4	1	3	2	21	19	243
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	1	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	8
...	...	...	3	...	...	...	...	...	2	...	1	1	1	...	...	...	...	...	2	...	17
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	1
...	2	...	4	2	6	...	...	2	10	5	...	1	1	2	1	1	1	...	9	16	80
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	7	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	4	1	46
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
5	39	...	249	46	82	1	1	68	152	20	32	11	68	6	39	25	18	22	243	268	2,673

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Nine Months

## B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.		
	1.		2		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c. in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.		
	Whilst coupling or uncoupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon, Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or chocking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.		By other Accidents not included in the preceding.						
	K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	R.	L	
SCOTLAND.																					
Caledonian	...	8	...	2	...	7	...	12	...	5	...	2	1	4	...	14	1	2	1	5	
Dumbarton and Balloch Joint	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	
Dundee and Arbroath Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Glasgow and Paisley Joint	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	
Glasgow and South-Western	...	3	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	1	...	3	
Glasgow, Barrhead and Kilmarnock Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Great North of Scotland	...	...	...	1	...	...	...	...	...	...	...	...	1	1	...	...	...	1	...	1	
Highland	...	1	...	...	...	...	...	2	...	1	...	...	1	1	...	...	2	...	...	...	
Kilsyth and Bonnybridge	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
North British	...	24	...	4	...	2	...	9	...	8	...	9	...	5	1	17	...	3	2	8	
Portpatrick and Wigtownshire Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	
Railway Clearing House	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
TOTAL, SCOTLAND	...	37	...	8	...	9	...	25	...	15	...	12	3	11	1	33	3	7	3	17	
IRELAND.																					
Belfast and County Down	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Belfast and Northern Counties	...	5	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	
Cavan and Leitrim	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Cork, Bandon and South Coast	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	
Donegal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Dublin, Wicklow and Wexford	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	
Great Northern	...	1	2	...	...	...	...	...	...	1	...	...	...	...	...	1	...	1	...	2	
Great Southern and Western	...	2	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	2	3	
Londonderry and Lough Swilly	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	
Midland Great Western	...	...	...	...	...	...	...	...	...	2	...	...	...	3	...	1	1	2	...	1	
Sligo, Leitrim and Northern Counties	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
TOTAL, IRELAND	...	1	11	...	...	...	...	1	...	3	...	...	...	5	1	2	2	4	3	6	
TOTAL, UNITED KINGDOM	...	9	411	3	27	...	16	1	179	6	290	1	77	10	324	27	364	15	61	9	207

\* Killed

† Injured

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued.*RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September 1901—*continued.*B. SERVANTS of COMPANIES and CONTRACTORS—*continued.*

11. By coming in contact with Over-bridges or Erections on the Sides of the Line.		12. Whilst attending to the Machinery, &c., of Engines in Motion.		13. Whilst working on the Permanent-Way, Sidings, &c.		14. Whilst attending to Gates at Level Crossings.		15. Whilst walking, crossing, or standing on the Line on Duty.				16. From being caught between Vehicles.		17. From falling or being caught between Trains and Platforms, Walls, &c.		18. Whilst walking, &c., along the Line to or from Work.		19. Miscellaneous.		TOTAL.	
								(a.) At Stations.		(b.) At other Parts of the Line.											
K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
2	4	...	3	6	2	...	...	1	5	4	3	1	2	...	3	2	1	2	11	21	95
...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	1
...	...	...	...	1	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	2	1
...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	4
...	2	...	1	4	...	1	...	2	3	...	...	1	1	...	1	...	...	2	1	10	19
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...
...	...	...	...	1	...	...	...	...	...	...	...	2	...	...	1	...	...	1	...	3	7
...	1	...	1	...	...	...	...	...	1	1	...	...	...	...	1	...	...	3	...	5	11
...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
...	1	...	14	5	7	1	...	6	10	1	2	...	10	...	3	...	1	3	9	19	146
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
2	8	...	20	17	10	2	...	10	19	10	6	2	15	1	7	4	2	7	25	65	236
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	...	9
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	1	2
...	1	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	1	1	3	5	11
...	...	...	...	1	...	...	...	1	1	...	...	...	...	1	...	...	...	1	4	4	10
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	9
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
1	2	...	1	1	...	...	1	1	4	...	...	...	...	2	1	...	1	4	12	46	...
8	49	...	270	64	92	3	2	79	175	30	38	13	83	7	48	30	20	30	272	345	3,095

\* Killed.

† Injured.

**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE No. 5—continued.**

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September 1901—*continued.*

**C. OTHER PERSONS.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres- passers.		Suicides and attempted Suicides.		Persons on Business at Stations and Sidings.		Miscel- laneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES.																		
Barry ... ..	...	...	1	...	...	...	1	...	...	...	...	...	1	1	...	...	2	1
Cambrian ... ..	...	...	...	1	...	...	...	1	...	...	...	...	...	1	...	...	...	2
Cardiff ... ..	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2
Central London ... ..	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Cheshire Lines ... ..	...	...	...	...	...	...	...	...	2	2	3	...	...	...	...	1	5	3
East and West Yorkshire Union.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Furness ... ..	...	...	...	...	...	...	...	...	...	2	...	...	...	1	...	...	...	3
Great Central ... ..	...	1	...	...	...	...	...	1	6	3	1	...	...	...	1	...	8	4
Great Eastern ... ..	3	1	1	...	...	...	4	1	8	3	9	1	...	7	1	1	22	13
Great Northern ... ..	1	...	...	...	...	1	1	1	6	3	4	...	...	4	...	...	11	8
Great Northern and Great Eastern Joint.	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	1	...
Great Northern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Great Western ... ..	1	...	...	1	5	...	6	1	26	18	17	...	1	5	1	5	51	29
Great Western and London and South-Western Joint	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Isle of Wight ... ..	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Lancashire and Yorkshire...	1	...	...	...	2	...	3	...	8	4	6	...	1	2	2	1	20	7
Lancashire and Yorkshire and London and North- Western Joint.	...	...	...	...	...	...	...	...	1	...	2	...	...	2	...	...	3	2
Lancashire, Derbyshire, and East Coast.	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	1	2	2
Llanelly and Mynydd Mawr	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
London and North-Western	1	2	...	...	...	...	1	2	19	8	7	2	3	9	1	1	31	22
London and North-Western and Great Western Joint.	...	...	...	...	...	...	...	...	1	...	2	...	...	1	...	...	3	1
London and North-Western and North Staffordshire Joint.	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	1	1
London and South-Western	...	...	...	...	2	...	2	...	6	3	4	...	2	17	2	2	16	22
London and South-Western and London, Brighton, and South Coast Joint.	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
London, Brighton, and South Coast.	1	1	...	...	...	...	1	1	4	2	4	...	...	3	1	...	10	6
London, Tilbury, and Southend.	...	...	...	...	...	...	...	...	...	1	1	...	...	1	1	...	2	2
Manchester Ship Canal ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Metropolitan ... ..	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	2	...
Metropolitan and Metro- politan District Joint.	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	1	2
Metropolitan District ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Midland ... ..	...	1	...	...	...	1	...	2	16	10	11	...	...	3	...	1	27	16
Midland and Great Northern Joint.	...	...	1	1	1	...	2	1	1	...	...	...	...	...	...	...	3	1
Midland and South-Western Junction.	...	...	1	...	...	...	1	...	1	...	...	...	...	1	...	...	2	1

\* Killed.

† Injured

**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE NO. 5—continued.**

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September 1901—continued.

**C. OTHER PERSONS—continued.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Trespassers.		Suicides and attempted Suicides.		Persons on Business at Sidings and Stations.		Miscellaneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES—cont.																		
North-Eastern ... ..	2	4	3	2	2	1	7	7	24	6	4	...	...	6	...	1	35	20
North London ... ..	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	1	1
North Staffordshire ... ..	...	...	...	1	...	...	...	1	2	4	3	...	...	...	...	...	5	5
Rhondda and Swansea Bay ... ..	...	...	...	1	...	...	...	1	1	...	...	1	...	...	...	...	1	2
Rhymney ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Severn and Wye Joint ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Sheffield and Midland Joint. ... ..	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	1
Somerset and Dorset Joint ... ..	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	1	2
South-Eastern and Chatham. ... ..	1	...	...	1	2	...	3	1	9	3	10	3	...	3	...	...	22	10
Swansea and Mumbles ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Taff Vale ... ..	...	...	...	...	1	...	1	...	7	2	...	...	...	...	...	...	8	2
Wirral ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
TOTAL, ENGLAND AND WALES ... ..	11	10	8	8	16	3	35	21	153	82	96	10	11	70	10	15	305	198
SCOTLAND.																		
Caledonian ... ..	...	...	...	...	...	...	...	...	22	12	1	1	...	8	...	...	23	21
Dumbarton and Balloch Joint. ... ..	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Dundee and Arbroath Joint ... ..	...	...	...	...	1	...	1	...	1	1	...	...	...	...	...	...	2	1
Glasgow and Paisley Joint ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Glasgow and South-Western ... ..	...	...	...	...	...	...	...	...	5	1	2	2	...	...	1	1	8	4
Glasgow, Barrhead, and Kilmarnock Joint. ... ..	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...	1	4	1
Grangemouth Branch ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Great North of Scotland ... ..	...	...	...	...	...	...	...	...	1	3	...	...	1	...	...	...	2	3
Highland ... ..	1	...	...	...	...	...	1	...	1	2	...	...	...	...	1	...	3	2
North British ... ..	1	...	2	...	...	...	3	...	13	9	2	1	2	8	1	1	21	19
Portpatrick and Wigtownshire Joint. ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
TOTAL, SCOTLAND ... ..	2	...	2	...	1	...	5	...	48	30	6	4	3	16	3	3	65	53
IRELAND.																		
Belfast and County Down ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Belfast and Northern Counties. ... ..	...	...	1	...	...	...	1	...	...	...	1	...	...	...	...	...	2	...
Cavan and Leitrim ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Cork, Blackrock, and Passage. ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Dublin, Wicklow, and Wexford. ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Great Northern ... ..	...	...	1	...	...	...	1	...	1	...	...	...	...	...	...	...	2	...
Great Southern and Western ... ..	...	...	...	1	...	...	...	1	6	1	...	...	...	1	1	...	7	3
Midland Great Western ... ..	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2	...
TOTAL, IRELAND ... ..	...	...	2	1	...	...	2	1	10	2	1	...	...	2	1	1	14	6
TOTAL, UNITED KINGDOM ... ..	13	10	12	9	17	3	42	22	211	114	103	14	14	88	14	19	384	257

\* Killed.

† Injured.

**NATURE OF INJURIES TO PERSONS FROM ACCIDENTS TO TRAINS AND FROM THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE No. 6.**

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September 1901, classified according to the NATURE of the INJURIES; with figures for the corresponding period of 1900.

					NATURE OF INJURIES.														Total Injured.				
					Injuries resulting in Loss of				Fractures of				Dislocations.	Internal Injuries.	Contusions of		Scalds or Burns	Sprains.		Cuts or Lacerations.	Shock to System.	Miscellaneous Injuries.	
					Fatal.	Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
																							1.
<b>Passengers :</b>																							
1901	...	..	...	...	84	7	2	2	4	30	9	7	7	9	115	321	1	86	273	152	467	1,442	
1900	...	..	...	...	108	4	2	6	6	36	4	10	7	10	176	249	3	34	260	189	846	1,842	
<b>Servants of the Companies and Contractors :</b>																							
1901	...	...	...	...	351	63	16	18	10	97	66	33	28	81	302	777	76	361	309	30	840	3,107	
1900	...	...	...	...	452	49	21	22	10	87	73	46	28	90	338	901	65	342	305	41	1,009	3,427	
<b>Other Persons :</b>																							
Persons having business at stations					1901	14	1	3	1	...	4	2	1	...	...	11	21	1	4	9	3	27	88
					1900	21	2	1	...	...	5	4	2	...	8	13	16	...	1	5	...	25	82
Trespassers					1901	211	12	6	2	2	11	5	1	1	13	17	...	...	12	...	31	114	
					1900	212	15	6	4	1	16	3	2	...	4	9	14	...	1	14	...	33	122
Others*...					1901	161	4	1	2	...	2	...	2	1	2	10	4	...	1	9	2	17	57
					1900	155	4	2	1	..	5	2	2	...	...	6	8	1	1	10	...	18	60
*(Including accidents at level crossings, suicides, and accidents to other persons not coming in any of the above classifications)																							
<b>TOTAL</b>					1901	821	87	28	25	16	144	82	44	37	93	451	1,140	78	402	612	187	1,382	4,808
					1900	948	74	32	33	17	149	86	62	35	112	542	1,188	69	379	594	230	1,931	5,533



**NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES KILLED OR INJURED IN ACCIDENTS TO TRAINS, AND BY THE MOVEMENT OF RAILWAY VEHICLES.**

TABLE NO. 7.

STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September, 1901, classified according to the NATURE of the EMPLOYMENT and AGE of the persons injured and the NATURE of the INJURIES; and also the total number of Persons employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	Number of Persons Employed in 1898.
	Fatal.	Injuries resulting in loss of				Fractures of			Dislocations.	Internal Injuries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to System.	Miscellaneous Injuries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
1. Brakesmen. (See Goods Guards.)																			
2. Capstanmen and Capstan-lads: (1) Men	3	...	...	...	...	2	...	1	...	...	3	21	...	4	2	...	36	69	921
(2) Boys	...	...	...	1	...	...	...	...	...	1	...	6	...	...	...	...	2	10	273
3. Carmen and Van-guards: (1) Men	1	...	...	...	...	...	...	1	...	3	...	...	...	1	...	...	3	8	15,687
(2) Boys	...	1	1	...	...	...	...	...	...	...	...	2	...	...	...	...	1	5	6,655
4. Carriage Cleaners: (1) Men	2	2	...	...	...	...	...	...	...	2	5	6	...	1	2	...	6	24	4,069
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	3	372
5. Carriage and Waggon Examiners.	3	2	...	...	...	2	1	...	...	...	...	4	...	...	3	...	2	14	3,105
6. Checkers: (1) Men	2	1	...	...	...	...	...	...	...	...	1	3	...	...	1	...	5	11	6,865
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	150
7. Chockers. Chain-boys, and Slippers: (1) Men	2	1	...	...	...	...	2	...	...	1	3	6	...	1	3	...	7	24	153
(2) Boys	...	...	...	...	1	1	1	...	...	1	4	22	...	2	1	...	9	42	551
8. Clerks: (1) Men	4	1	...	...	...	...	1	...	1	...	...	...	...	1	1	...	4	9	43,247
(2) Boys	4	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...	1	4	10,574
9. Engine Cleaners: (1) Men	3	2	...	...	...	4	...	...	2	4	7	6	2	2	5	...	14	48	16,191
(2) Boys	2	1	...	...	...	...	1	1	...	...	2	1	...	...	1	1	7	15	4,602
10. Engine Drivers	17	4	...	...	...	4	4	2	2	6	37	31	26	19	30	1	70	236	22,237
11. Firemen	19	3	...	2	4	5	3	5	...	8	32	90	44	30	47	2	100	375	21,821
12. Gatekeepers	3	...	...	...	...	1	...	...	...	...	2	...	...	...	...	...	...	3	3,531
13. Greasers: (1) Men	5	...	...	...	...	...	...	...	...	...	1	2	...	...	2	...	...	5	955
(2) Boys	4	...	...	...	...	1	...	...	...	...	2	...	...	...	...	...	3	6	663
14. Guards (Goods) and Brakesmen.	31	8	7	3	...	10	9	6	2	11	56	145	2	122	44	10	164	599	14,720
15. Guards, Passenger	5	...	...	...	...	1	...	...	1	2	6	21	...	20	13	2	16	82	6,826
16. Horse Drivers	2	...	...	...	...	3	1	...	1	...	4	37	...	9	6	...	10	71	2,082
17. Inspectors: (1) Permanent-way	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1,025
(2) Others	5	...	...	...	...	...	...	...	...	...	1	3	...	1	1	1	4	11	7,585
18. Labourers	23	5	...	...	...	8	5	...	2	3	15	27	...	3	19	...	32	119	52,900
19. Lampmen and Lamp-lads: (1) Men	3	...	...	...	...	...	...	...	...	...	1	...	...	...	4	...	1	6	1,769
(2) Boys	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	3	378
20. Loaders and Sheeters	2	...	...	...	...	1	1	...	...	1	1	8	...	...	...	...	7	19	4,130
21. Mechanics: (1) Men	12	1	...	...	...	1	1	...	...	1	3	5	...	...	...	1	7	20	68,661
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8,609
22. Messengers: (1) Men	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	705
(2) Boys	2	1	...	...	...	1	...	...	...	...	2	1	...	...	...	...	2	7	2,466
23. Number Takers: (1) Men	1	...	...	...	...	1	...	...	...	...	2	2	...	2	1	...	1	9	959
(2) Boys	1	...	...	...	...	...	1	...	...	...	1	2	...	...	...	1	...	5	557
24. Permanent-way Men	84	4	1	1	1	11	12	1	2	2	9	19	...	4	9	1	33	110	63,360
25. Pointsmen	3	1	...	1	...	...	...	...	1	...	1	7	...	1	6	...	7	25	1,056
26. Policemen	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	2	1,836
27. Porters: (1) Men	25	5	1	5	2	16	10	7	3	10	37	131	1	40	43	5	97	413	46,677
(2) Boys	2	...	2	1	...	...	1	...	...	...	1	4	...	1	4	...	3	17	4,167
28. Shunters	22	9	2	1	...	5	10	2	8	16	36	126	1	84	37	4	127	468	9,244
29. Signal Fitters	4	1	...	...	...	2	...	...	1	...	...	...	...	...	...	...	1	5	2,273
30. Signalmen	7	1	...	1	1	4	1	1	1	1	2	8	...	...	2	1	8	32	25,543
31. Signal Box Lads	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	3	1,963
32. Station Masters	1	...	...	...	...	1	...	2	...	...	2	4	...	2	2	...	4	17	7,868
33. Ticket Collectors	1	...	...	...	...	1	...	...	...	...	1	3	...	2	3	...	3	13	3,069
34. Watchmen	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	983
35. Yardsmen	3	1	...	...	...	1	...	2	...	1	5	5	...	1	...	...	11	27	1,816
36. Miscellaneous: (1) Adults	16	1	1	...	...	5	1	1	1	7	11	8	...	6	11	...	23	76	26,255
(2) Boys	1	2	...	...	...	...	...	...	...	...	3	2	...	...	1	...	...	8	2,037
Total of Railway Servants.	338	60	15	17	10	93	66	32	28	81	301	770	76	360	306	30	836	3,081	534,141
37. Contractors' Servants: (1) Men	13	3	1	1	...	4	...	1	...	...	1	7	...	1	2	...	4	25	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	
Total of Contractors' Servants.	13	3	1	1	...	4	...	1	...	...	1	7	...	1	3	...	4	26	
Total of Railway and Contractors' Servants.	351	63	16	18	10	97	66	33	28	81	302	777	76	361	309	30	840	3,107	

## NUMBER OF PERSONS KILLED OR INJURED ON RAILWAY PREMISES OTHERWISE

TABLE No. 8.

SUMMARY STATEMENT OF THE NUMBER of PASSENGERS, SERVANTS of the COMPANIES and KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS COMPANIES in the Nine Months ending 30th September 1901, with corresponding figures for

	1901.					
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>						
1. Whilst ascending or descending steps at stations	8	207	2	2	...	...
2. By being struck by barrows, by falling over packages, &c., on station platforms.	...	77	...	...	...	...
3. From falling off platforms on to the ballast ...	3	60	...	2	...	...
4. By other accidents ... ..	2	124	1	8	...	...
<b>TOTAL OF PASSENGERS ... ..</b>	<b>13</b>	<b>468</b>	<b>3</b>	<b>12</b>	<b>...</b>	<b>...</b>
<b>SERVANTS :—</b>						
1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes.	4	1,291	1	71	...	15
2. Whilst moving goods and luggage in stations or sheds.	1	366	...	18	...	1
3. Whilst working at cranes or capstans ... ..	2	148	...	9	...	1
4. By the falling of waggon-doors, lamps, bales of goods, &c.	...	397	...	26	...	4
5. Whilst attending to engines at rest ... ..	...	930	...	56	1	5
6. From falling off, or when getting on or off engines or vehicles at rest.	1	561	...	25	...	7
7. From falling off platforms on to the ballast ...	...	153	...	6	...	1
8. From falling off ladders, scaffolds, &c. ... ..	12	247	1	17	...	4
9. By stumbling whilst walking on the line ...	...	461	...	15	...	4
10. By being trampled on or kicked by horses whilst engaged in railway work.	1	48	...	2	...	...
11. From being struck by articles thrown from passing trains.	...	8	...	2	...	...
12. From the falling of rails, sleepers, &c., when at work on the line.	...	556	1	12	...	4
13. Otherwise injured when at work on the line or in sidings.	3	801	...	21	1	8
14. Miscellaneous ... ..	9	1,208	1	42	...	12
<b>TOTAL OF SERVANTS ... ..</b>	<b>33</b>	<b>7,175</b>	<b>4</b>	<b>322</b>	<b>2</b>	<b>66</b>
<b>OTHER PERSONS :—</b>						
On business at stations and sidings ... ..	6	281	3	14	...	3
Miscellaneous ... ..	11	71	2	10	...	1
<b>TOTAL OF OTHER PERSONS ... ..</b>	<b>17</b>	<b>302</b>	<b>5</b>	<b>24</b>	<b>...</b>	<b>4</b>
<b>GRAND TOTAL ... ..</b>	<b>63</b>	<b>7,945</b>	<b>12</b>	<b>358</b>	<b>2</b>	<b>70</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, sidings, goods yards, and all other premises warehousing goods, repairing sheds,

THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 8.

of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE as having been to TRAINS or by the MOVEMENT OF RAILWAY VEHICLES, on the PREMISES\* of the RAILWAY the UNITED KINGDOM for the Nine Months ending 30th September 1900.

1901.		1900.		
UNITED KINGDOM.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
10	209	2	215	PASSENGERS :—  1. Whilst ascending or descending steps at stations. 2. By being struck by barrows, by falling over packages, &c., on station platforms. 3. From falling off platforms on to the ballast. 4. By other accidents.
...	77	...	70	
3	62	...	40	
3	132	1	104	
16	480	3	429	TOTAL OF PASSENGERS.
5	1,377	5	1,736	SERVANTS :—  1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes. 2. Whilst moving goods and luggage in stations or sheds. 3. Whilst working at cranes or capstans. 4. By the falling of waggon-doors, lamps, bales of goods, &c. 5. Whilst attending to engines at rest. 6. From falling off, or when getting on or off engines or vehicles at rest. 7. From falling off platforms on to the ballast. 8. From falling off ladders, scaffolds, &c. 9. By stumbling whilst walking on the line. 10. By being trampled on or kicked by horses whilst engaged in railway work. 11. From being struck by articles thrown from passing trains. 12. From the falling of rails, sleepers, &c., when at work on the line. 13. Otherwise injured when at work on the line or in sidings. 14. Miscellaneous.
1	385	...	443	
2	158	1	177	
...	427	2	469	
1	991	1	1,050	
1	593	2	759	
...	160	...	175	
13	268	6	285	
...	480	2	512	
1	50	1	88	
...	10	...	7	
1	572	2	306	
4	830	7	1,086	
10	1,262	5	1,066	
39	7,563	34	8,189	TOTAL OF SERVANTS.
9	248	8	274	OTHER PERSONS :—  On business at stations and sidings.  Miscellaneous.
13	82	3	87	
22	330	11	361	TOTAL OF OTHER PERSONS.
77	8,373	48	8,979	GRAND TOTAL.

\* used for the purpose of working the railway, but does not include factories, workshops, buildings used exclusively for stables, hotels, and other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1 Whilst loading, unloading, or sheeting Waggons.		2 Whilst moving Goods and Luggage in Stations or Sheds.		3 Whilst work- ing at Cranes or Capstans.		4 By the falling of Wagon Doors, Lamps, Bales of Goods, &c.		5 Whilst attending to Engines at rest.		6 From falling off, or when getting on or off Engines or Vehicles at rest.		7 From falling off Platforms on to the Ballast.	
	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.
<b>ENGLAND AND WALES.</b>														
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ...	...	3	...	...	...	...	...	...	...	3	...	...	...	...
Brecon and Merthyr ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Burry Port and Gwendraeth Valley.	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Cambrian ...	...	6	...	...	...	...	...	4	...	1	...	4	...	2
Carlisle Joint Station ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Central London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	1	2	...	...	...	...	...	...	...	...	...	1	...	1
City and South London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cookermouth, Keswick, and Penrith.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colne Valley and Halstead ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
East and West Yorkshire Union...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Furness ...	...	5	...	...	...	...	...	...	...	3	...	3	...	...
Great Central ...	...	41	...	11	1	6	...	14	...	18	...	11	...	4
Great Eastern ...	...	112	...	37	...	8	...	36	...	94	...	42	...	11
Great Northern ...	...	72	...	52	...	12	...	35	...	5	...	22	...	24
Great Northern and Great Eastern Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Great Western ...	1	134	...	21	...	8	...	17	...	92	...	64	...	29
Hull, Barnsley, and West Riding Junction.	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Lancashire and Yorkshire ...	1	211	1	53	1	17	...	44	...	135	...	50	...	4
Lancashire and Yorkshire and London and North-Western Joint.	...	12	...	...	...	...	...	2	...	...	...	2	...	...
Lancashire, Derbyshire and East Coast.	...	1	...	...	...	1	...	...	...	4	...	...	...	...
London and North-Western ...	...	295	...	58	...	36	...	73	...	320	...	150	...	22
London and North-Western and Furness Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and North-Western and Great Western Joint.	...	11	...	1	...	1	...	1	...	...	...	...	...	4
London and North-Western and Midland Joint.	...	...	...	1	...	...	...	...	...	...	...	1	...	2
London and South-Western ...	...	73	...	35	...	8	...	20	...	20	...	18	...	2
London and South-Western, and London, Brighton, and South Coast Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...
London, Brighton, and South Coast.	...	31	...	8	...	6	...	20	...	15	...	12	...	1
London, Tilbury and Southend ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Macclesfield Joint Station ...	...	2	...	1	...	...	...	...	...	...	...	1	...	...
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Mersey ...	...	1	...	2	...	...	...	2	...	...	...	2	...	...
Metropolitan ...	...	2	...	2	...	...	...	1	...	2	...	...	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ...	...	2	...	1	...	...	...	...	...	2	...	3	...	3
Midland ...	...	167	...	46	...	23	...	87	...	111	1	93	...	23
Midland and Glasgow and South-Western Joint.	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Midland and Great Northern Joint.	...	10	...	...	...	...	...	...	...	1	...	4	...	...
Midland and Great Western Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Midland and Lancashire and Yorkshire Joint.	...	2	...	1	...	1	...	...	...	...	...	...	...	...
Midland and South-Western Junction.	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Neath and Brecon ...	...	...	...	2	...	...	...	1	...	1	...	...	...	...

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Nine Months ending 30th September 1901.

8		9		10		11		12		13		14		Total.		NAME OF COMPANY.
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscellaneous.				
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
ENGLAND AND WALES																
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Alexandra (Newport) Dock.
...	1	...	1	...	...	...	...	...	1	...	2	...	1	...	11	Barry.
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	3	Brecon and Merthyr.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Burry Port and Gwendraeth Valley.
...	...	...	1	...	...	...	...	...	5	...	2	...	4	...	29	Cambrian.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	3	Carlisle Joint Station.
...	...	...	...	...	...	...	...	...	...	...	...	1	4	1	4	Central London.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	6	Cheshire Lines.
...	1	...	...	...	...	...	...	...	...	...	...	...	4	...	5	City and South London.
...	1	...	...	...	...	...	...	...	...	...	2	...	...	...	3	Cookermouth, Keswick, and Penrith.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	Colne Valley and Halstead.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	East and West Yorkshire Union.
...	...	...	...	...	...	...	...	...	1	...	3	...	4	...	19	Furness.
1	5	...	7	...	...	...	...	...	9	...	9	...	23	4	158	Great Central.
1	15	...	34	1	8	...	...	...	66	...	121	...	150	2	734	Great Eastern.
...	19	...	23	...	4	...	...	...	22	...	42	...	78	...	410	Great Northern.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Great Northern and Great Eastern Joint.
...	24	...	48	...	...	...	2	...	76	1	98	...	106	2	719	Great Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Hull, Barnsley, and West Riding Junction.
3	29	...	27	...	4	...	1	...	22	...	22	3	77	9	696	Lancashire and Yorkshire.
1	1	...	4	...	...	...	...	...	3	...	1	...	5	1	30	Lancashire and Yorkshire and London and North-Western Joint.
...	1	...	1	...	...	...	...	...	...	...	2	...	...	...	10	Lancashire, Derbyshire and East Coast.
1	63	...	132	...	4	...	2	...	169	...	242	...	312	1	1,879	London and North-Western.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	London and North-Western and Furness Joint.
...	2	...	6	...	...	...	...	...	7	...	20	...	11	...	64	London and North-Western and Great Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	6	London and North-Western and Midland Joint.
...	14	...	14	...	1	...	...	...	30	...	30	...	28	...	293	London and South-Western.
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	3	London and South-Western, and London, Brighton, and South Coast Joint.
1	15	...	7	...	...	...	...	...	19	1	24	...	14	2	172	London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	London, Tilbury and Southend.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	Macclesfield Joint Station.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	Maryport and Carlisle.
...	1	...	...	...	...	...	...	...	1	...	...	...	2	...	11	Mersey.
...	2	...	4	...	...	...	...	...	6	...	8	...	6	...	33	Metropolitan.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Metropolitan and Metropolitan District Joint.
...	1	...	1	...	...	...	...	...	3	...	3	...	2	...	21	Metropolitan District.
...	26	...	37	...	19	...	2	...	70	1	77	...	239	2	1,072	Midland.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Midland and Glasgow and South-Western Joint.
...	...	...	...	...	1	...	...	...	4	...	7	1	8	1	35	Midland and Great Northern Joint.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	4	Midland and Great Western Joint.
...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	7	Midland and Lancashire and Yorkshire Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Midland and South-Western Junction.
...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	6	Neath and Brecon.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repair or other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—continued.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Whilst loading, unloading, or sheeting Waggon.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst working at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off Platforms on to the Ballast.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>ENGLAND AND WALES—cont</b>														
Normanton Joint Station ...	...	1	...	...	...	1	...	...	...	...	...	...	...	...
North and South-Western Junction.	...	...	...	...	...	...	...	...	...	...	...	1	...	...
North-Eastern ...	1	58	...	23	...	15	...	25	...	60	...	35	...	7
North-Eastern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	1	...	...
North London ...	...	4	...	3	...	...	...	1	...	5	...	1	...	...
North Staffordshire ...	...	3	...	2	...	1	...	2	...	1	...	3	...	1
Nottingham Joint Station ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	3	...	...	...	...	...	...	...	...	...	1	...	...
Rhondda and Swansea Bay ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Rhymney ...	...	1	...	...	...	...	...	...	...	5	...	1	...	...
Severn and Wye Joint ...	...	...	...	1	...	...	...	...	...	1	...	...	...	...
Sheffield and Midland Joint ...	...	3	...	...	...	1	...	...	...	...	...	1	...	...
Somerset and Dorset Joint ...	...	...	...	...	...	...	...	2	...	1	...	1	...	...
South-Eastern and Chatham ...	...	9	...	1	...	1	...	7	...	13	...	17	...	8
Taff Vale ...	...	8	...	1	...	1	...	1	...	12	...	15	...	...
Tottenham and Forest Gate Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Tottenham and Hampstead Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West London Extension Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay.	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Railway Clearing House ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>TOTAL, ENGLAND AND WALES</b>	<b>4</b>	<b>1,291</b>	<b>1</b>	<b>366</b>	<b>2</b>	<b>148</b>	<b>...</b>	<b>397</b>	<b>...</b>	<b>930</b>	<b>1</b>	<b>561</b>	<b>...</b>	<b>153</b>
<b>SCOTLAND.</b>														
Caledonian ...	1	27	...	7	...	5	...	6	...	22	...	9	...	...
Glasgow and Paisley Joint ...	...	7	...	...	...	1	...	...	...	...	...	...	...	1
Glasgow and South-Western ...	...	...	...	...	...	1	...	2	...	2	...	...	...	...
Glasgow, Barrhead, and Kilmar- nock Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Great North of Scotland ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Highland ...	...	4	...	...	...	1	...	...	...	2	...	...	...	...
North British ...	...	31	...	11	...	1	...	18	...	30	...	16	...	5
<b>TOTAL, SCOTLAND</b>	<b>1</b>	<b>71</b>	<b>...</b>	<b>18</b>	<b>...</b>	<b>9</b>	<b>...</b>	<b>26</b>	<b>...</b>	<b>56</b>	<b>...</b>	<b>25</b>	<b>...</b>	<b>6</b>
<b>IRELAND.</b>														
Belfast and County Down ...	...	...	...	1	...	...	...	...	...	1	...	1	...	...
Belfast and Northern Counties ...	...	9	...	...	...	...	...	2	...	3	...	1	...	1
Cork, Bandon, and South Coast ...	...	...	...	...	...	...	...	1	1	1	...	...	...	...
Dundalk, Newry and Greenore ...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Great Northern ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Southern and Western ...	...	2	...	...	...	...	...	...	...	...	...	3	...	...
Midland Great Western ...	...	4	...	...	...	1	...	1	...	...	...	1	...	...
<b>TOTAL, IRELAND</b>	<b>...</b>	<b>15</b>	<b>...</b>	<b>1</b>	<b>...</b>	<b>1</b>	<b>...</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>...</b>	<b>7</b>	<b>...</b>	<b>1</b>
<b>TOTAL, UNITED KINGDOM...</b>	<b>5</b>	<b>1,377</b>	<b>1</b>	<b>385</b>	<b>2</b>	<b>158</b>	<b>...</b>	<b>427</b>	<b>1</b>	<b>991</b>	<b>1</b>	<b>593</b>	<b>...</b>	<b>160</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Nine Months ending 30th September 1901.

8		9		10		11		12		13		14		Total.		NAME OF COMPANY.	
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscellaneous.					
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	ENGLAND AND WALES— <i>cont.</i>	
...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	3	Normanton Joint Station.	
2	12	...	37	...	7	...	1	...	29	...	61	...	88	3	458	North and South-Western Junction.	
...	...	...	1	...	...	...	...	...	...	...	...	...	3	...	5	North-Eastern.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	North - Eastern and London and North-Western Joint.	
...	1	...	2	...	...	...	...	...	2	...	2	...	5	...	26	North London.	
...	2	...	2	...	...	...	...	...	2	...	2	...	6	...	27	North Staffordshire.	
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	Nottingham Joint Station.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	3	Rhondda and Swansea Bay.	
1	...	...	...	...	...	...	...	...	1	...	...	...	...	1	8	Rhymney.	
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	4	Severn and Wye Joint.	
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	7	Sheffield and Midland Joint.	
...	...	...	2	...	...	...	...	...	1	...	6	...	1	...	14	Somerset and Dorset Joint.	
1	3	...	6	...	...	...	...	...	3	...	7	1	7	2	82	South-Eastern and Chatham.	
...	1	...	2	...	...	...	...	...	3	...	4	...	3	...	51	Taff Vale.	
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	Tottenham and Forest Gate Joint.	
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	Tottenham and Hampstead Joint.	
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	2	West London Extension Joint.	
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	3	Wrexham, Mold, and Connah's Quay.	
...	...	...	2	...	...	...	...	...	...	...	...	1	...	1	2	Railway Clearing House.	
12	247	...	461	1	48	...	8	...	536	3	801	9	1,208	33	7,175	{ TOTAL, ENGLAND AND WALES.	
...	9	...	8	...	2	...	...	...	4	...	7	1	20	2	126	SCOTLAND.	
...	1	...	...	...	...	...	2	...	...	...	...	...	...	...	12	Caledonian.	
1	4	...	...	...	...	...	...	...	...	...	...	...	1	1	10	Glasgow and Paisley Joint.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Glasgow and South-Western.	
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Glasgow, Barrhead, and Kilmarnock Joint.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Great North of Scotland.	
...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	11	Highland.	
...	3	...	7	...	...	...	...	...	1	7	...	12	...	19	1	160	North British.
1	17	...	15	...	2	...	2	1	12	...	21	1	42	4	322	TOTAL, SCOTLAND.	
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	IRELAND.	
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	17	Belfast and County Down.	
...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	4	Belfast and Northern Counties.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	Cork, Bandon, and South Coast.	
...	...	...	...	...	...	...	...	...	1	...	1	...	1	...	4	Dundalk, Newry, and Greenore.	
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Great Northern.	
...	3	...	2	...	...	...	...	...	3	1	7	...	4	1	24	Great Southern and Western.	
...	1	...	2	...	...	...	...	...	...	...	...	...	2	...	12	Midland Great Western.	
...	4	...	4	...	...	...	...	...	4	1	8	...	12	2	66	TOTAL, IRELAND.	
13	268	...	480	1	50	...	10	1	572	4	830	10	1,262	39	7,563	{ TOTAL, UNITED KINGDOM.	

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

**NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.**

TABLE No. 10.

STATEMENT showing the number of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD OF TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September, 1901, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS injured and the NATURE of the INJURIES; and also the total number of PERSONS employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	No. of Persons employed in 1898.
	Fatal.	Injuries resulting in loss of			Fracture of				Dis-locations.	In-ternal In-juries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to Sys-tem.	Miscellaneous In-juries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skulls.	Legs or Arms.	Collar-bones or ribs.	Other Bones.			Head or Body.	Limbs.							
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.		
1. Brakemen. (See Goods Guards.)																			
2. Capstan-men and Capstan-lads: (1) Men	...	...	...	...	...	...	...	...	...	1	...	4	...	1	2	...	5	13	921
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	3	273
3. Carmen and Van-guards: (1) Men	3	...	...	...	...	9	3	...	2	5	17	72	...	49	26	...	84	267	15,687
(2) Boys	1	...	...	...	1	2	...	1	2	2	9	22	1	7	12	...	20	79	6,655
4. Carriage-cleaners: (1) Men	...	...	...	...	1	3	4	...	1	2	10	11	2	19	12	2	31	98	4,069
(2) Boys	...	...	...	...	...	...	...	...	...	...	1	2	...	1	...	2	3	9	372
5. Carriage and wag-gon examiners.	...	...	...	...	...	1	...	1	1	...	2	5	1	8	2	...	11	32	3,105
6. Checkers: (1) Men	...	...	...	...	...	1	1	1	...	1	8	36	...	23	6	...	29	106	6,865
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	150
7. Chockers, Chain-boys, and Slip-pers: (1) Men	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	4	6	153
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	4	5	551
8. Clerks: (1) Men	...	...	...	...	...	...	...	...	...	2	1	6	...	10	1	1	8	29	43,247
(2) Boys	...	...	...	...	...	1	...	1	...	...	...	5	...	3	4	...	4	18	10,574
9. Engine-cleaners: (1) Men	...	...	...	...	...	2	2	1	2	9	18	44	26	87	34	2	105	277	16,191
(2) Boys	...	...	...	...	...	1	...	2	...	2	3	8	9	13	6	...	16	60	4,602
10. Engine-drivers	1	...	1	...	...	6	4	3	5	5	35	70	32	77	44	1	151	434	22,237
11. Firemen	1	...	...	...	...	3	1	2	2	2	31	131	32	99	58	1	166	528	21,821
12. Gatekeepers	1	...	...	...	...	...	...	...	2	...	1	2	...	3	...	...	3	11	3,531
13. Greasers: (1) Men	...	...	...	...	...	1	...	...	...	...	2	3	1	1	2	...	8	18	955
(2) Boys	...	...	...	...	...	1	1	...	...	...	...	1	...	...	...	...	...	3	663
14. Guards (Goods) and Brakemen.	...	...	...	...	...	2	...	...	1	...	9	48	1	69	6	...	53	189	14,720
15. Guards (Passenger)	...	...	...	...	...	...	...	...	...	1	6	18	...	28	11	1	15	80	6,826
16. Horse-drivers	...	...	...	...	...	1	...	2	...	...	2	7	...	7	2	...	6	27	2,082
17. Inspectors: (1) Permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1,025
(2) Others	...	...	...	...	...	2	...	...	...	1	1	10	...	11	...	...	7	32	7,585
18. Labourers	7	...	...	4	2	24	11	17	4	21	40	385	13	120	103	5	321	1,070	52,900
19. Lamp-men and lamp-lads: (1) Men	...	...	...	...	...	1	...	1	...	2	2	2	2	15	6	1	24	56	1,769
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	3	...	4	3	1	1	12	378
20. Loaders and Sheetmen.	...	...	...	...	...	1	2	2	...	...	4	40	...	17	12	1	41	120	4,130
21. Mechanics: (1) Men	5	...	...	...	3	5	3	1	4	5	16	60	13	60	53	1	134	358	68,661
(2) Boys	...	...	...	...	...	1	...	...	...	1	2	5	...	1	1	...	7	18	8,609
22. Messengers: (1) Men	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	2	4	705
(2) Boys	...	...	...	...	...	1	...	...	1	2	...	1	...	2	2	...	3	12	2,466
23. Number-takers: (1) Men	1	...	...	...	...	...	...	...	2	2	...	3	...	8	1	...	2	18	959
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	1	4	557
24. Permanent-way Men.	4	...	...	3	...	23	7	10	6	12	26	335	2	13	131	1	289	975	63,360
25. Pointsmen	...	...	...	...	...	1	...	...	...	...	...	1	...	4	...	...	2	8	1,056
26. Policemen	...	...	...	...	...	2	...	...	...	1	...	4	...	2	2	...	5	16	1,836
27. Porters: (1) Men	8	...	1	2	1	30	19	12	17	33	94	533	11	293	176	7	464	1,693	46,677
(2) Boys	...	...	...	...	...	3	...	...	1	...	2	18	1	7	10	...	15	57	4,167
28. Shunters	...	...	...	...	...	4	1	...	2	9	24	2	...	33	10	...	29	114	9,244
29. Signal fitters	1	...	...	1	...	1	1	...	1	1	5	11	...	7	10	...	22	60	2,273
30. Signalmen	1	...	...	...	1	...	2	...	2	3	3	18	...	41	9	...	37	116	25,543
31. Signal-box lads	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	2	4	1,963
32. Station-masters	...	...	...	...	...	1	2	...	2	1	1	6	...	11	2	...	7	33	7,868
33. Ticket-collectors	...	...	...	...	...	...	1	...	...	1	1	3	...	8	2	...	5	21	3,069
34. Watchmen	...	...	...	...	...	1	...	...	...	...	2	...	...	1	...	1	5	10	983
35. Yardsmen	...	...	...	...	...	...	...	...	...	1	1	3	...	5	2	...	5	17	1,816
36. Miscellaneous: (1) Adults	...	...	...	...	1	8	1	1	3	12	23	80	13	49	27	...	112	340	26,255
(2) Boys	...	...	...	...	...	1	...	...	...	...	...	4	...	1	6	...	10	22	2,037
Total of Railway Servants	34	...	2	10	10	141	70	59	62	133	392	2,050	162	1,289	797	28	2,279	7,484	534,141
37. Contractors' Servants: (1) Men	5	...	...	...	...	7	2	2	...	5	4	20	1	5	10	1	22	79	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total of Contractors' Servants	5	...	...	...	...	7	2	2	...	5	4	20	1	5	10	1	22	79	
Total of Railway and Contractors' Servants	39	...	2	10	10	148	72	61	62	138	396	2,070	163	1,294	807	29	2,301	7,563	



## ACCIDENTS TO TRAINS, ROLLING STOCK AND PERMANENT WAY.

TABLE No. 11.

SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to the BOARD OF TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM during the Nine Months ending 30th September 1901, classified according to the NATURE of the ACCIDENT; with figures for the UNITED KINGDOM for the corresponding period of 1900.

NATURE OF ACCIDENT.	1901.				1900.
	ENGLAND AND WALES.	SCOTLAND.	IRELAND.	UNITED KINGDOM.	UNITED KINGDOM.
<b>(A)—ACCIDENTS TO TRAINS :—</b>					
1. Collisions between passenger trains or parts of passenger trains.	24	9	...	33	28
2. Collisions between passenger trains and goods or mineral trains or light-engines.	27	5	2	34	50
3. Collisions between goods trains or parts of goods trains and light-engines.	28	6	...	34	34
4. Collisions between trains and vehicles standing foul of the line.	2	2	...	4	1
5. Collisions between trains and buffer-stops or vehicles standing against buffer-stops :—					
(a) From trains running into stations or sidings at too high a speed.	10	...	2	12	13
(b) From other causes ... ..	11	1	...	12	16
6. Trains coming in contact with projections from other trains running on parallel lines.	...	...	...	...	2
7. Passenger trains or parts of passenger trains leaving the rails.	36	10	1	47	53
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	11	2	...	13	20
9. Trains running through gates at level-crossings or into other obstacles.	112	36	3	151	138
10. Fires in trains ... ..	3	13	...	16	12
11. Miscellaneous ... ..	1	...	...	1	3
<b>(B)—ACCIDENTS TO OR FAILURE OF ROLLING STOCK AND PERMANENT WAY :—</b>					
12. The bursting of boilers or tubes, &c., of engines...	3	...	1	4	2
13. The failure of machinery, springs, &c., of engines	1	1	...	2	4
14. The failure of tyres ... ..	150	2	...	152	197
15. " " " wheels ... ..	1	...	...	1	...
16. " " " axles ... ..	99	28	2	129	125
17. " " " brake apparatus* ... ..	...	...	...	...	...
18. " " " couplings ... ..	6	...	...	6	7
19. " " " ropes used in working inclines ...	...	...	...	...	...
20. " " " tunnels, bridges, viaducts, culverts, &c.	...	...	...	...	6
21. Broken rails ... ..	176	37	23	236	209
22. The flooding of portions of permanent way of such a nature as to involve danger.	6	1	...	7	12
23. Slips in cuttings or embankments of such a nature as to involve danger.	3	2	...	5	21
24. Fires at stations or involving injury to bridges or viaducts.	3	2	...	5	12
25. Miscellaneous ... ..	...	...	...	...	...

\* A Return is published half-yearly setting out in detail all the cases in which brake apparatus has failed to act properly  
10388

TABLE NO. 12.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Nine Months ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES.													
Barry ... ..	...	...	1	...	...	...	...	...	...	...	...	...	...
Basingstoke and Alton Light.	...	...	...	...	...	...	...	...	...	...	1	...	...
Brecon and Merthyr ...	...	...	...	...	...	...	...	...	...	1	...	...	...
Cambrian ... ..	...	...	...	...	...	...	...	...	1	...	2	...	...
Carlisle Goods Traffic Committee.	...	...	1	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	1	...	...	...	...	...	...	...	...	...	...	...	...
Cleator and Workington Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...
Colne Valley and Halstead	...	...	...	...	...	...	...	...	...	...	...	...	...
Festiniog ... ..	...	...	...	...	...	...	...	...	2	...	...	...	...
Furness ... ..	1	...	...	...	...	...	...	...	...	...	1	...	...
Great Central ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...
Great Eastern ... ..	3	1	1	...	...	...	1	...	1	...	16	...	...
Great Northern ... ..	4	5	3	...	...	1	3	...	1	...	7	...	...
Great Northern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Western ... ..	...	1	...	...	...	...	1	...	4	2	22	2	...
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	...	1	...	...	...	...	...	...
Isle of Wight Central ...	...	...	...	...	...	...	...	...	1	...	...	...	...
Lancashire and Yorkshire	1	2	3	...	...	...	1	...	1	1	3	...	1
Lancashire and Yorkshire and London and North-Western Joint.	1	...	...	...	...	...	...	...	1	...	1	...	...
Lancashire, Derbyshire and East Coast.	...	...	...	...	...	...	...	...	...	...	1	...	...
London and North-Western	...	1	5	...	...	1	2	...	1	2	...	...	...
London and North-Western and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	2	...	...
London and North-Western and Midland Joint.	1	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western	3	3	2	...	...	...	1	...	1	...	10	1	...
London and South-Western and London, Brighton and South Coast Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...
London, Brighton, and South Coast.	1	1	2	2	...	1	...	...	4	1	7	...	...

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE No. 12.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 30th September 1901.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Outtings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	2	...	...	...	...
...	...	...	...	...	...	...	...	...	2	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	3	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	1	...	...	...	...	1	...	...	...	...
...	...	...	...	3	...	...	...	...	6	...	...	...	...
...	...	1	...	5	...	...	...	...	8	6	...	...	...
...	...	2	...	5	...	...	...	...	8	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	2	...	14	...	...	...	...	19	...	...	3	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	...	2	...	...	...	2	...	...	12	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	...	27	...	13	...	...	...	...	10	...	...	...	...
...	...	...	...	...	...	...	...	...	8	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	7	...	...	...	...	17	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	4	...	1	...	...	2	...	3	...	...

under B are entered against the Company to which the rolling-stock or permanent-way belongs.

TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Nine Months ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES —cont.													
Manchester and Milford ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Manchester, South Junction, and Altrincham.	1	...	...	...	...	...	...	...	1	...	...	...	...
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey .. ...	...	...	...	...	...	...	...	...	1	...	...	...	...
Metropolitan ... ..	1	...	...	...	...	...	...	...	...	1	...	...	...
Metropolitan and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland ... ..	...	4	5	...	...	1	...	...	6	...	...	...	...
Midland and Great Northern Joint.	...	...	...	...	...	1	...	...	...	...	6	...	...
Midland and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	2	...	...
Midland and South-Western Junction.	...	...	...	...	...	...	...	...	...	...	3	...	...
Neath and Brecon ... ..	...	...	...	...	...	1	...	...	...	1	...	...	...
North Eastern ... ..	3	4	3	...	...	2	1	...	4	1	22	...	...
North Staffordshire ...	...	1	...	...	...	...	...	...	...	...	...	...	...
North Wales Narrow Gauge	...	...	...	...	...	...	...	...	2	...	...	...	...
Rhymney ... ..	...	...	1	...	...	...	...	...	...	...	...	...	...
Rother Valley ... ..	...	...	...	...	...	1	...	...	...	...	1	...	...
Somerset and Dorset Joint	...	...	...	...	...	...	...	...	...	...	2	...	...
South-Eastern and Chatham.	2	3	...	...	...	1	...	...	3	...	2	...	...
South Wales Mineral ...	...	...	1	...	...	...	...	...	...	...	...	...	...
Taff Vale ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...
West Coast Joint Stock ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wigan Junction ... ..	1	...	...	...	...	...	...	...	...	...	...	...	...
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES.	24	27	28	2	10	11	...	36	11	112	3	1	

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but these

## STOCK, AND PERMANENT WAY.

TABLE No. 12—continued.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 30th September 1901.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Cuttings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	...	2	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	2	...	2	...	1	...	...	6	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	2	...	...	7	...	...	...	...
...	1	6	1	16	...	...	...	...	32	...	...	...	...
...	...	2	...	2	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	3	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	...	1	...	1	...	...	...	...	26	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	5	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	100	...	12	...	...	...	...	...	...	...	...	...
3	1	150	1	99	...	6	...	...	176	6	3	3	...

under B are entered against the Company to which the rolling-stock or permanent way belongs.

## ACCIDENTS TO TRAINS, ROLLING

TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Nine Months ending

NAME OF COMPANY.	A.											
	1	2	4	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains	Miscellaneous.
SCOTLAND.												
Caledonian ... ..	4	1	4	...	...	...	...	2	...	12	13	...
Dumbarton and Balloch Joint.	...	1	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western.	2	1	...	2	...	...	...	4	1	...	...	...
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow District Subway...	...	...	...	...	...	...	...	1	...	...	...	...
Great North of Scotland ...	...	...	...	...	...	1	...	...	...	1	...	...
Highland ... ..	...	1	...	...	...	...	...	...	...	2	...	...
North British ... ..	3	1	2	...	...	...	...	3	...	2	...	...
Portpatrick and Wigtownshire Joint.	...	...	...	...	...	...	...	...	1	...	...	...
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	9	5	6	2	...	1	...	10	2	36	13	...
IRELAND.												
Belfast and County Down	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties.	...	...	...	...	...	...	...	1	...	...	...	...
Cavan and Leitrim ...	...	...	...	...	...	...	...	...	...	2	...	...
Dublin, Wicklow and Wexford.	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern ... ..	...	1	...	...	...	...	...	...	...	1	...	...
Great Southern and Western.	...	1	...	...	2	...	...	...	...	...	...	...
West Clare ... ..	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, IRELAND ...	...	2	...	...	2	...	...	1	...	3	...	...
TOTAL, UNITED KINGDOM	33	34	34	4	12	12	...	47	13	151	16	1

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE No. 12—*continued.*

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 30th September 1901.

## B.

12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Cuttings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	..	1	...	8	...	...	...	...	32	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	5	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	1	...	...	...	...	...	1	1	...	...
...	1	...	...	11	...	...	...	...	3	...	...	2	...
...	...	...	...	...	...	...	...	...	...	...	1	...	...
...	...	...	...	3	...	...	...	...	...	...	...	...	...
...	1	2	...	28	...	...	...	...	37	1	2	2	...
...	...	...	...	...	...	...	...	...	3	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	4	...	...	...	...
1	...	...	...	...	...	...	...	...	5	...	...	...	...
...	...	...	...	1	...	...	...	...	9	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
1	...	...	...	2	...	...	...	...	23	...	...	...	...
4	2	152	1	129	...	6	...	...	236	7	5	5	...

under B are entered against the Company to which the rolling-stock or permanent-way belongs.

Board of Trade,  
31st January, 1902.

FRANCIS J. S. HOPWOOD.





## APPENDIX A.

### REPORTS TO THE BOARD OF TRADE BY INSPECTING OFFICERS OF THE RAILWAY DEPARTMENT UPON CERTAIN ACCIDENTS WHICH HAVE BEEN INQUIRED INTO.

	Page.		Page.
<b>GLASGOW AND SOUTH WESTERN :</b>		<b>NORTH EASTERN :</b>	
Major Druitt's report on the collision which occurred on the 6th August between two passenger trains at Gorbals Junction.	45	Lieutenant-Colonel von Donop's report on the collision which occurred on the 20th July between a passenger train and the engine of an empty passenger train near Polam Junction, Darlington.	59
<b>LONDON AND NORTH WESTERN AND MIDLAND JOINT :</b>			
Lieutenant-Colonel von Donop's report on the collision which occurred on the 5th September between two passenger trains at New Street, Birmingham.	48	Lieutenant-Colonel von Donop's report on the collision which occurred on the 7th August between a passenger train and some goods waggons near Grosmont Station.	66
<b>MIDLAND :</b>			
Major Pringle's report on the accident which occurred on the 6th July to a passenger train, a portion of which left the rails, near Wath Road Junction, Swinton.	54		

For other Reports of Inquiries into Accidents which have occurred during  
the nine months; see [Cd. 774] and [Cd. 775].



## GLASGOW AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
October 14th, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 16th August, the result of my inquiry into the collision which took place on the 6th August between two passenger trains at Gorbals Junction on the Glasgow and South-Western Railway.

In this case, as the 6.5 p.m. passenger train from Pollokshaws to Glasgow was crossing the junction at Gorbals, it was run into by the 6.15 p.m. passenger train from Glasgow to Girvan.

The Pollokshaws train consisted of a 6-wheels-coupled engine with 6-wheeled tender fitted with the automatic vacuum brake on the 6 coupled wheels and 6 tender wheels, and with the hand-brake on the 6 tender wheels, and of the following carriages in order named :—

								Wheels.
1 brake third-class	...	...	...	...	...	...	...	6
2 third-class	...	...	...	...	...	...	...	6
1 first-class	...	...	...	...	...	...	...	6
2 third-class	...	...	...	...	...	...	...	6
1 bogie first-class	...	...	...	...	...	...	...	8
1 composite	...	...	...	...	...	...	...	6
1 brake-van	...	...	...	...	...	...	...	4

with blocks worked by the automatic vacuum brake on all wheels except the centre pair of the 6-wheeled carriages.

The Girvan train consisted of a 4-wheels-coupled passenger engine with leading axle, and 6-wheeled tender fitted with the Westinghouse automatic brake on the 4 coupled wheels and 6 tender wheels, and with hand-brake on the 6 tender wheels, arranged also to work automatic vacuum brake on all the carriages of the train with the same handle controlling both brakes in combination, and of the following carriages in order named, viz. :—

								Wheels.
3 North-Eastern Company's horse boxes	...	...	...	...	...	...	...	4
5 third-class	...	...	...	...	...	...	...	6
1 first-class bogie	...	...	...	...	...	...	...	8
1 third-class	...	...	...	...	...	...	...	6
1 meat-van	...	...	...	...	...	...	...	6
1 brake-van	...	...	...	...	...	...	...	6

with blocks worked by the automatic vacuum brake on all the wheels except the centre pair of the 6-wheeled vehicles.

All the brakes are stated to have been in good working order.

No passenger complained of injury, but the guard of the Pollokshaws train was slightly bruised on the face.

The accident occurred at 6.20 p.m. The brake-van and rear wheels of the last vehicle of the Pollokshaws train were derailed as also was the engine of the Girvan train.

Details of the damage to rolling stock are given in the Appendix.

#### *Description.*

Opposite Gorbals Junction cabin, near where this accident occurred, there are four passenger lines of railway all parallel to each other, known as up and down main lines and up and down canal lines. The down lines run approximately from the south to the north and the main lines are on the west side of the canal lines. Gorbals Junction cabin is on the east side of all the lines.

The signal cabins on either side of Gorbals Junction cabins are Gorbals Station cabin to the south and Clyde Junction cabin to the north.

At a distance of 50 yards north of the cabin there are facing points for connection in the down canal line leading to the down main line, and the corresponding trailing points of the connection from the up main line to the up canal line.

The other ends of these connections in the up and down main lines are 100 yards further from the cabin northwards, and 20 yards further on are the up home splitting signals applying to the above connection in the up main line, these signals being thus 170 yards north of the signal cabin.

The next signal applicable to trains approaching Gorbals Junction cabin on the up main line is Clyde Junction main line up advance signal, which is situated on a bridge of signals 113 yards further north than the Gorbals Junction up home signals.

The down home signals for Gorbals Junction cabin are on a bridge 163 yards south of the cabin at the north end of Gorbals Station.

The lines between Clyde Junction and Gorbals Junction are worked under Sykes' electric lock and block system, but owing to the large amount of traffic and a succession of junctions at Clyde Junction, Gorbals Junction and Port Eglinton, the Company find it impossible in practice to carry out General Block Rule No. 4, as regards junction working. Speed is restricted to 10 miles an hour over this section of the line, on which alterations have for some time been in progress.

#### *Evidence.*

*Robert Hamilton*, signalman in charge of Gorbals Junction cabin, states: I have been about eight years in the Company's service, seven years as a signalman. On 6th August I came on duty at 2 p.m. to work till 10 p.m., having come off duty at 10 p.m. the previous night. On 6th August I was offered the 6.5 p.m. passenger train from Pollokshaws to Glasgow from Gorbals Station cabin at 6.12, accepted it 6.15, and it passed my box at 6.20, after calling at Gorbals Station for ticket collecting. I lowered the down home signal from the Glasgow, Barrhead and Kilmarnock line, which is the starting signal from Gorbals Station, before it left the station, the train proceeding via the down canal line to the down main line. I offered this train to Clyde Junction at 6.19 p.m., and it was accepted same time. I was offered the 6.15 p.m. passenger train from Glasgow to Girvan from Clyde Junction on the up main line at 6.17 p.m., accepted it same time, but kept my up main line home signal at danger, to allow the 6.5 p.m. Pollokshaws train to cross the junction to get on to the down main line. I saw the 6.15 p.m. train approaching the home signal, but just then a train on the up canal line passed my box and the smoke of it obscured my view, and when I saw it again the collision had occurred. Had I seen the 6.15 p.m. Girvan train pass the up main home signal at danger, I could have done nothing to prevent the accident.

*Thomas Duff*, engine driver, states: I am 59 years of age and have been 32 years in the Company's service, 27 of which I have been a driver. I came on duty at 3 p.m. on 6th August to work till 12 midnight, having previously come off duty at 1 p.m. on 5th August. On the 6th August I was the driver of the 6.15 p.m. train from Glasgow to Girvan. I left St. Enoch Station about 1 minute late, and was proceeding on the up main line to Gorbals Junction. The up advance starter at Clyde Junction was off, but all three home signals at Gorbals Junction were at danger. I did not notice the position of the up home signals at Gorbals Junction until I was close up to them. My attention was called to the signals by observing the Pollokshaws train crossing the junction, and I then saw the home signals were at danger. I instantly applied the brake, but failed to bring the train to a stand in time to prevent a collision. I was running about 10 miles an hour, both when I passed under up advance

starting signal and when I noticed the home signals at danger. Had I noticed the home signals at danger just as I passed under Clyde Junction up advance signal, I could easily have brought my train to a stand before passing the home signal. My engine was No. 29, a four-wheeled coupled passenger engine with leading axle and six-wheeled tender, fitted with the Westinghouse brake on four coupled wheels and six tender wheels, and hand-brake on the six tender wheels, and arranged to work automatic vacuum-brake on all the carriages of the train with the same handle controlling both brakes in combination. Both brakes were in good order. I am quite unable to explain why I failed to notice the position of the Gorbals Junction home signals when I passed under Clyde Junction advance signal.

*George Johnstone*, fireman, states: I am 25 years of age and have been for six years in the Company's service, five years of which I have been a fireman. I came on duty on 6th August about 3 p.m. to work till about 1 a.m. on the 7th, having previously come off duty at 1 p.m. on 5th. I have heard driver Duff's statement read over to me, and I agree with it so far as Clyde Junction up advance starting signal is concerned, but I did not notice the Gorbals Junction home signals until after the collision, as I was firing at the time, having just left Glasgow, but when I saw them they were at danger. I did not notice the Pollokshaws train approaching until my driver shouted to me to put on the hand-brake. We were running about 15 miles an hour before the driver applied the brake.

*William Muir*, passenger guard, states: I am 46 years of age and have been 25 years in the Company's service, 13 of which I have been a passenger guard. I came on duty on 6th August at 8.25 a.m. to work till 8.30 p.m. with about one-and-a-half hours off duty for meals at my home. On 6th August I was guard of the 6.5 p.m. passenger train from Pollokshaws to St. Enoch, which consisted of engine No. 306, one brake third-class, two third-class, one first-class, two third-class, one first-class bogie, one composite, and one brake-van in rear, equal to nine-and-a-half vehicles, all six-wheeled stock except the bogie (eight wheels), and brake-van (four wheels). Train was fitted throughout with vacuum brake

which was working properly. Left Pollokshaws at 6.7, two minutes late, arriving at Gorbals Station at 6.15, departed 6.20 (five minutes late) being detained three minutes after tickets were collected waiting the passing of up and down trains on Canal line. We had only a few passengers in the train. I saw the signal lowered for my train to leave Gorbals Station but did not observe the position of the signals at Clyde Junction till after the collision and they were then clear for my train to run into St. Enoch. When train was crossing from down canal to down main line I was standing in the van and being taken unawares by the collision was thrown down and my nose was slightly bruised by coming into contact with the dog-boot of van, but I was not off duty in consequence. On getting out of the van I saw the driver of the 6.15 p.m. train standing in front of his engine which was off the rails on that side, and brake-van No. 87 and composite No. 8 of my train were also derailed. There was only one passenger in the composite carriage and I asked him if he was all right and he replied "Yes." The impact divided my train in front of the bogie carriage, leaving the latter, the composite and brake van coupled together, and the space between these and the front portion was about three carriage lengths. The engine of the 6.15 p.m. train had grazed the footboard of third-class carriage No. 459 which was in front of the bogie carriage and the side of the latter and the carriage in rear of it were stripped.

*John Ferguson*, passenger guard, states: I have been about 11 years in the Company's service, about seven of which I have been a passenger guard. On 6th August I came on duty about 7 a.m. to work till 8.27 p.m., with about three hours off duty for meals at Girvan where I live. On 6th August I was guard of the 6.15 p.m. train Glasgow to Girvan. My train consisted of engine, three North-Eastern four-wheeled horse-boxes, five Glasgow and South-Western six-wheeled third-class carriages, one Glasgow and South-Western bogie first, one Glasgow and South-Western six-wheeled third, one Glasgow

and South-Western dead meat van, and Glasgow and South-Western six-wheeled brake-van, fitted with the automatic vacuum brake, with blocks on all the wheels except centre pair of the six-wheeled coaches. Brakes were in good order at the time. I tested them previously to leaving Glasgow. I noticed the Clyde Junction up main line home signal was off when we passed. I then started to sort my parcels but did not notice any other signals until the train stopped. No one in my train complained of injury. I did not notice the brake being applied very suddenly but the vacuum was fully destroyed. I felt no shock of the collision.

*John Buist*, engine-driver, states: I am 31 years of age and have been 13 years in the Company's service, about five of which I have been a driver. I came on duty on 6th August about 7 a.m. to work till 7 p.m., having previously come off duty at 7 p.m. on 5th August. On 6th August I was the driver of the 6.5 p.m. train from Pollokshaws to Glasgow, and after stopping at Gorbals Station, the down home signal from the Glasgow, Barrhead, and Kilmarnock Joint Line was lowered for me, when I whistled for it, and I could then see that the next two signals ahead, viz., Gorbals Junction down main line advance and Clyde Junction down inner home, were off for me. My engine had just got through the junction from the down canal to the down main line when I saw the 6.15 p.m. Girvan train approaching on the up main line. Its engine was close up to the Gorbals Junction up home signal, and it struck me that the train would not stop before passing the Gorbals up home signals, which I saw were at danger. I put on steam to try and clear the junction with my train but failed to do so before the collision took place. I was travelling about 10 miles an hour when I saw the other train and the other train was going about the same speed. My engine was a six-wheels-coupled engine and six-wheeled tender with the automatic vacuum brake on the six coupled wheels and the six tender wheels and the hand brake on the six tender wheels, working vacuum throughout the train.

### *Conclusion.*

From the above evidence it will be seen that this accident was due to driver T. Duff, of the 6.15 p.m. Glasgow to Girvan train, passing the up main line home signal at Gorbals Junction box while it was at danger, and fouling the crossing connection from the down canal line to the down main line, over which the 6.5 p.m. Pollokshaws train was passing at the time. Duff quite admits his error, and could offer no explanation as to how he missed seeing the up home signals, of which he had a clear view for 110 yards after passing the Clyde Junction up advance starting signal, which was off for him.

But the system of working the traffic at Gorbals Junction cabin was also a contributory cause of the accident, as it was a dangerous practice to allow a train to come up to a signal at danger, by over-running which for a distance of 40 yards or so it would foul the crossing from one line to another, over which crossing a train had already been accepted to run.

It is necessary for safe working that the Clyde Junction advance starting signal for both lines should be locked with the junction crossings, and this, I understand, the Company are about to carry out.

It is fair to point out, however, that considerable alterations are in progress on this portion of the line which it is to be hoped will be completed as soon as possible.

I have, &c.,

The Assistant Secretary,  
Railway Department, Board of Trade.

E. DRUITT,  
Mayor, R.E.

## APPENDIX.

## DAMAGE TO ROLLING STOCK.

Glasgow and South-Western engine, No. 29, of the 6.15 p.m. passenger train from St. Enoch to Ayr.—Front buffer beam and injector pipe broken; buffer, platform angles, footsteps, vacuum brake train pipe, injector and sandbox damaged; coupling rod and crank axle bent.

Vehicles on the 6.5 p.m. passenger train Pollokshaws to St. Enoch.

Glasgow and South-Western composite, No. 8.—Headstock, 3 axle-boxes, buffer spindle, buffer casting, 2 footboards, 8 footboard hangers, side and end panels, 4 side lights, gas pipe and screw coupling broken.

Glasgow and South-Western bogie first, No. 114.—2 Headstocks, 4 footboards, 4 hangers, axle-box, 2 door handles, door light and side panel broken; bogie frame damaged, and buffer spindle bent.

Glasgow and South-Western third, No. 459.—Headstock, 2 footboards, 2 hangers, and deck rail broken.

Glasgow and South-Western brake van, No. 87.—2 axle-boxes, 2 footboards, 5 hangers, door handle, headstock and corner pillar broken, side panels damaged.

Printed copies of the above Report were sent to the Company on the 12th November.

## LONDON AND NORTH-WESTERN AND MIDLAND JOINT RAILWAYS.

Board of Trade, Railway Department,  
8, Richmond Terrace, Whitehall, London, S.W.,  
19th October, 1901.

SIR,

I have the honour to report, for the information of the Board of Trade, in compliance with your Order of the 12th September, the result of my inquiry into the circumstances under which a collision occurred at about 5.30 p.m., on the 5th September, at New Street Station, Birmingham, between two passenger trains.

In this case, as the 4.15 p.m. Midland train from Derby to Birmingham, consisting of two engines and twelve vehicles, was entering New Street Station, it came into collision with the rear of the 4 p.m. Midland train from Evesham to Birmingham, which was standing in the station on No. 6 platform line.

The passengers by the latter train had fortunately all left it, but three of the Company's servants, who were engaged in unloading luggage from the rear brake van, were severely injured, and the driver was slightly bruised. None of the passengers in the Derby train were seriously injured, but five complaints have been received by the Company of slight personal injuries sustained.

Four of the vehicles of the Evesham train were derailed, three of them being very seriously damaged, and the engine and three other vehicles were slightly injured.

In the Derby train the engine was severely damaged, and seven of the vehicles slightly so; one pair of wheels of this train was derailed.

The Evesham train consisted of a four-wheels-coupled tender engine and the following vehicles attached to it in the order given:—

- 1 van.
- 1 third-class carriage.
- 2 composites.
- 2 third-class carriages.
- 1 brake van.

The Derby train consisted of two engines, the front one of which was a four-wheels-coupled tender engine, and the rear one an eight-wheeled uncoupled tender engine. Both engines were fitted with steam and hand brakes.

The train consisted of the following vehicles attached to the engine in the order given:—

	Wheels.
1 van ... ..	6
1 bogie composite ... ..	8
1 third-class carriage ... ..	6
1 bogie composite ... ..	8
1 van ... ..	6
1 bogie third-class carriage ... ..	12
1 dining carriage ... ..	8
1 kitchen — ... ..	4
1 bogie dining carriage ... ..	12
1 bogie composite ... ..	8
1 third-class carriage ... ..	6
1 van ... ..	6

All these vehicles were fitted with the automatic vacuum brake, working in conjunction with the steam brakes on the engines ; these brakes are reported to have been in good working order.

Details of damage done to the rolling stock and permanent way are given in the Appendix.

### *Description.*

New Street Station, Birmingham, where this collision occurred, is the property of the London and North-Western Railway Company, but it is used by the trains both of that Company and of the Midland Railway Company, and it is managed by a joint committee of those two Companies. The two trains concerned in this collision were both Midland Railway Company's trains. They were both running on No. 4 down main line, which adjoins platform No. 6, and it is with that line alone that this accident is concerned.

Down trains on No. 4 main line run through the station in a direction which is approximately from south to north, platform No. 6 being on the west side of that line.

Near the centre of the station there is a footbridge over the line, and as it was just to the north of this footbridge that the collision occurred, it will be convenient to consider the positions of the signal-boxes and signals concerned with this accident with reference to that footbridge.

The signals for No. 4 main line are worked from two signal-boxes, viz., No. 2 box, situated to the south of the footbridge, and No. 4 box, situated to the north of it. From the former are worked the distant and home signals relating to that line and from the latter the platform stop and starting signals.

The distances of these boxes and signals from the overbridge are respectively as follows :—

No. 2 signal-box	...	...	106 yards south of footbridge.
Down distant signal	...	...	1,087       "       "
Down home signal	...	...	239       "       "
No. 4 signal-box	...	...	87 yards north of footbridge.
Down platform stop signal	...	...	At footbridge.
Down starting signal	...	...	90 yards north of footbridge.

There is a clearance bar fixed on the line immediately under the down platform stop signal, and this bar prevents the home signal—239 yards in rear of it—being lowered when there is a train standing on it.

The Company has exemption from block working through the station.

The next block box to No. 2 station box is Proof House Junction signal box, distant 1,061 yards from it.

For a down train approaching New Street Station from Proof House Junction there is a rising gradient of 1 in 53, a quarter of a mile in length, immediately in rear of the home signal, and on this gradient there is a tunnel 280 yards in length. The mouth of this tunnel is 40 yards distant from the home signal. From the home signal into the station the line is practically level.

The driver of a down train does not obtain a view of his home signal until he emerges from the tunnel, i.e., at a point 40 yards distant from it. His view of the platform stop signal, which is fixed underneath the overbridge, is also considerably interfered with owing to the curve on which the line runs into the station, and by an overbridge at the south end of it. There is also a siding on the east side of the line, and when, as in this case, there are carriages standing on that siding, the driver's view is still further interfered with. From these combined causes a driver may not get a clear view of the platform stop signal till he is within 70 yards of it.

The down distant signal is only controlled by the home signal, and the fact, therefore, of the former being lowered gives the driver no indication as to whether the platform stop signal is at danger or not.

With reference to this point the following is the Company's special regulation on the subject :—

" All engines and trains emerging from the north or south tunnels must be completely under control, so that they can be stopped at any part of the station. Guards must attend carefully to the brake and work it in such a manner as to assist the driver to the utmost. They must be careful not to take off the brake until the train has come quite to a stand.

" The lowering of the main signal for entering the station at either end only indicates that the line is clear up to the platform stop signal on the footbridge near the middle of the station. Drivers must be prepared to come to a stand under all circumstances at the platform stop signal for the line on which they are running."

The Company's rule as to the acceptance of a train on No. 4 down line from Proof House Junction is as follows :—

"A train requiring to enter the station on No. 4 down line must not be accepted from Proof House Junction by No. 2 box until the line on which the train requires to run is clear to the stop signal on the footbridge."

### *Evidence.*

*James Turner*, signalman, states : I have had 28 years' service with the Company, 25 years as signalman, and have been employed at No. 4 box, New Street Joint Station, for 11 years. On September 4th I came on duty at 2 p.m., and finished duty at 10 p.m., and on September 5th I came on duty at 2 p.m. to remain until 10 p.m. The 4 p.m. Midland passenger train, Evesham to Birmingham, arrived at No. 6 platform at 5.34 p.m. (5 minutes late), and was brought to a stand at the north end with the rear vehicle half a carriage-length ahead of the footbridge. As soon as it came to a stand I placed the stop signal on the footbridge to danger, and immediately received the signal from No. 2 box indicating that the 4.15 p.m. express passenger train, Derby to Bristol, was approaching, and would enter the station on No. 6 platform line. As the Evesham train was standing on that line I maintained the bridge signal at danger, but the express from Derby, instead of coming to a stand at the bridge signal, came into collision with the rear of the Evesham train at about 5.38 p.m. I noticed the express approaching as it was passing No. 2 box, and thought the speed was higher than usual, and too high to enable the train to stop at the bridge signal. I consequently did not lower that signal for the train to draw up to the Evesham train as I should have done had it been approaching in the usual way. I have known the signal run past before, but not often. Whenever this has occurred I have reported it.

*George Midwinter*, signalman, states : I have had 5 years' service, 3 years as signalman, and have been employed at No. 2 box, New Street Joint Station, about 4 months. On September 4th I came on duty at 2 p.m. and finished duty at 10 p.m., and on September 5th I came on duty at 2 p.m. to remain until 10 p.m. I accepted the "Is line clear" signal for the 4 p.m. Midland passenger train, Evesham to Birmingham, from Proof House Junction at 5.28, and I received the "Train entering section" signal at the same time. I lowered my home and distant signals for the train to enter the station on No. 6 platform line, and it did so at 5.34 p.m., and was brought to a stand at the north side of the footbridge beyond my clearance bar near to the bridge. I placed my signals at danger, gave the "Train out of section" signal for the Evesham train, and at once received the "Is line clear" signal for the express from Derby. I accepted it at once, and the "Train entering section" signal was received at the same time. As the line was clear to the footbridge, in accordance with my instructions I lowered my home and distant signals, Nos. 67 and 68, for the Derby train to enter the station on No. 6 platform line. The Derby train, which was drawn by two engines, passed my box at about 5.38 p.m., and I noticed that the speed was higher than usual, and I thought it doubtful whether it could be stopped before the stop-signal. I thought that the Evesham train could not have been drawn away from the platform and I looked at the bridge signal. I saw that it was at danger, but the engines had then passed my box, and it was consequently too late to warn the drivers. Some carriages were standing in the siding between Nos. 5 and 6 platform lines.

I saw the Derby train come to a sudden stand, but I did not actually see the collision occur.

*Arthur Thomas Smith*, engine driver, states : I have had 22 years' service, 11 years as engine driver, and have been used to working trains into New Street Station about 4 years. On September 4th I came on duty at 1 p.m. and finished duty about 10.50 p.m. On September 5th I came on duty at 1 p.m. to perform shunting operations at Evesham until 3 p.m. and work the 4 p.m. passenger train, Evesham to Birmingham, and the 7.32 p.m. passenger train, Birmingham to Evesham, expecting to finish duty about 11 p.m. My engine was No. 159A, a four-wheels-coupled tender-engine fitted with a hand brake working blocks on the tender wheels, and with a steam brake on the driving and trailing wheels of the engine and all six wheels of the tender, working in connection with the vacuum brake on the train. My train consisted of equal to seven vehicles, fitted throughout with the automatic-vacuum brake, both brakes being worked by one lever from the footplate. We arrived at New Street Station at 5.34 p.m.—five minutes late—having had a late start of three minutes, and been delayed two minutes by signals on the journey. The signals were all off for me to run into No. 6 platform, and I brought my engine to a stand against the departure signals at the north end of No. 6 platform. I released the continuous brake and had the tender hand brake applied. I got off my engine, and was standing on the platform examining the tender axle-boxes, when something came into collision with the rear of my train, forcing my engine and tender forward about 15 yards. I was in a stooping position alongside the tender, and the leading van (which left the rails with one pair of wheels) caught me on the shoulder causing a slight bruise, in consequence of which I was off duty seven days, but I have now resumed duty. The brakes on the engine and train were in very good condition.

*Richard Dobson*, passenger guard, states : I have been about 33 years in the service of the Company, during 19 of which I have been a guard. I came on duty on the 4th of September at 10.30 a.m. and went off duty again about 8.46 p.m. On the 5th of September I came on duty at 10.30 a.m. and worked till about 11 p.m. I know New Street Station, Birmingham, very well. I was in charge of the 4 p.m. Evesham train. The train consisted of engine and tender and the following vehicles attached to it in the order given :—

One van,  
One third,  
Two composites,  
Two thirds,  
Rear brake van.

I was riding in the rear brake van. The train was fitted with the automatic vacuum brake. It was in good order. I remember arriving at New Street Station at 5.34 p.m. on No. 6 platform. When my train was brought to a stand my van was just past the footbridge a short way beyond the stop signal. Whilst standing there we were run into by



another train. I did not see the train approaching and had no warning of its coming. At the time of the collision I was attending to my parcels in my van. After the collision I found myself on the top of the second or third vehicle mixed up with the débris and broken glass. I was stunned and cannot give any further information as to what occurred. I did not notice whether the stop signal was put to danger behind us.

*George Shewell*, passenger guard, states : I have had about 25 years' service, 20 years as passenger guard, and have been used to working passenger trains into New Street Station for 15 years. On September 4th I came on duty at 1.40 p.m. and finished duty at 8.20 p.m. On September 5th I came on duty at 1 p.m. to work the 1.38 p.m. express passenger train Bradford to Bristol (4.15 p.m. from Derby) expecting to finish duty at 8 p.m. On leaving Derby my train consisted of engines 1566 and 34 and the following vehicles in the order given from the engines :—

Six-wheeled van,  
Eight-wheeled bogie compo,  
Six-wheeled third,  
Eight-wheeled bogie compo,  
Six-wheeled van,  
Twelve-wheeled bogie third,  
Eight-wheeled dining carriage,  
Four-wheeled kitchen,  
Twelve-wheeled bogie dining carriage,  
Eight-wheeled bogie compo,  
Six-wheeled third,  
Six-wheeled van,

12, equal to 17, vehicles, all in use with the automatic vacuum brake in good order. We left Tamworth, the last stopping station, 22 minutes late. We have three minutes allowed for a conditional stop at Castle Bromwich, which we did not make, and my van was brought to a stand in the south tunnel at New Street, according to my watch, at 5.36 p.m. There was nothing unusual in the way the train came to a stand beyond that I noticed that the brakes were suddenly applied. I got out, told the passengers to keep their seats, and went forward and found that my train had come into collision with another train standing on No. 6 Platform line. I noticed that the fourth and fifth vehicles on my train were buffer-locked, but I did not notice any wheels off the rails. Several vehicles were damaged. No passengers complained of injury at Birmingham, but a gentleman I spoke to at Birmingham handed his card to the station master at Mangotsfield and said he had been in a collision. I did not notice anything unusual in approaching the station. I am aware of the instructions on page 320 of the Midland Appendix respecting guards applying their brakes, but I did not apply my hand brake on this occasion as the drivers would rather have the handling of their brakes themselves when fitted throughout with the automatic. I was riding from Derby in the rear van. I did not notice anything unusual in our speed when approaching the station. I have often run into the station on the same train. If I had thought the speed of the train too high I would have applied the brake. There was no side light to my van, but in this case it would not have assisted me at all. We were due at Birmingham at 5.20 p.m.

*John Daniels*, passenger guard, states : I have had 28 years' service, 20 years as passenger guard, and have been used to working into New Street Station about 10 years. On September 4th, I came on duty at 1 p.m., and finished duty

at 10.45 p.m., and on September 5th I came on duty at 12.20 p.m. to work the 12.55 p.m. passenger train York to Sheffield, and to act as under guard from Sheffield to Bristol, with the 1.38 p.m. passenger train ex Bradford (4.15 p.m. from Derby). I was travelling in the van next to the engine. I did not notice at what time we left Derby, but think we were about 20 minutes late, and we were about the same late at Tamworth. I did not notice anything unusual with the speed while we were entering New Street Station, but when my van was alongside the platform, I felt the continuous brake suddenly applied, and the collision at once occurred. On leaving the South Tunnel, I did not notice that the speed was any higher than usual. The collision lifted me off my feet, but as I had hold of the irons of the windows I was not injured in any way. No passenger complained to me of being hurt at Birmingham. I am aware of the instructions on page 320 of the Midland Appendix, respecting attending carefully to the brakes, but I did not consider it necessary to apply my hand brake on this occasion, as it is not the practice to do so. I have often run into Birmingham on this same train.

*Frank Bennett*, engine driver, states : I have had about 20 years' service, 6 years as engine driver, have worked into New Street Station as an engine driver since February last, and am well acquainted with the signals and regulations for working. On September 4th, I came on duty at 2 p.m., and finished duty at 12 midnight. On September 5th I came on duty as a spare driver at 2 p.m., and was called upon to assist the 4.15 p.m. express passenger train from Derby to Birmingham, expecting to finish duty at about 12 midnight. My engine was No. 1566, a four-wheeled coupled engine with leading bogie and a six-wheeled tender. The driving and trailing wheels of the engine, and all six wheels of the tender were fitted with the steam brake, and the train was fitted with the automatic vacuum brake, of which I had control, both brakes being applied by one lever from the footplate. The brakes were in very good order. The train consisted of equal to 17 vehicles. We were 20 minutes late leaving Derby. We left Tamworth about 22 minutes late. There was nothing unusual between Tamworth and our approaching New Street Station. Approaching Grand Junction, the distant signal was at danger, but the home signal was lowered when I sighted it. All the signals at the Proof House Junction, the distant signal near Proof House Junction worked from No. 2 Box, and No. 2 Box home signal, applicable to No. 6 platform line, were lowered. When my train emerged from the tunnel, we were running at six or seven miles an hour. I applied my brake slightly, just before I left the south tunnel, and released it again ; I again applied it when my engine was going under the Worcester Street Bridge, and again released it at once, and I think that the speed when passing No. 2 Box was five or six miles an hour. I crossed over to my fireman's side, specially to look out for the bridge signal, but could not see it. I went back to my own side of the engine ; but when about an engine's length from the bridge, I saw a train standing in front of us. I did not see the stop signal at the bridge before seeing the train in front of me. I was engaged applying my brake. I at once applied the continuous brake and reversed my engine, the speed was checked, but we came into contact with the train standing in front of me at a speed of about three or four miles an hour. I was unable to see the bridge signal

when I went over to the fireman's side, owing to some carriages standing on the siding between Nos. 5 and 6 platform lines. When we emerged from under the Worcester Street Bridge, I thought I had the train fully under control so that I could have brought it to a stand at the bridge signal, and the only explanation I can give for not having done so is that I failed to apply the brake sufficiently. Both myself and my fireman remained on the footplate, and we were not injured in any way. Even after the collision I did not see the stop signal at all. Even though I had not seen the stop signal my full intention was to stop my train short of it. I was not making up time with the train, and had no intention of doing so. I think that the train with which we came into collision was about half a coach-length ahead of the stop signal. The stop signal is under the bridge; if it had been over the bridge I should have seen it.

*William Gregory*, fireman, states: I have had five years' service, four years as fireman, and have worked into New Street Station occasionally during the whole of the time. On September 4th and 5th I was fireman to driver Bennett and worked the same hours as he did. We were in charge of the leading engine on the 4.15 p.m. passenger train from Derby. Our last stopping place was Tamworth, and nothing unusual occurred between Tamworth and Proof House Junction. I do not recollect the position of the signals at Grand Junction. The signals at Proof House Junction, the distant signal at Proof House Junction worked from No. 2 box, and No. 2 box home signal, applicable to No. 6 platform line, were all lowered. I cannot say what the speed of my train was when we were entering the station, but there did not appear to be anything unusual in the speed. I did not see the bridge signal until we were about an engine's length from it, when it was at danger. I was attending to the injectors, and that is the reason that I did not see the signal earlier. I went to my driver's side to apply the injector on that side, as the engine was blowing off steam. When I saw the signal at danger I saw the vehicles of a train standing on the same line about a carriage length beyond the bridge. I did not call to warn my driver, but I put my hand brake on to assist in stopping the train. My engine, however, came in contact with the vehicles, but I cannot say at what speed. I think that I saw the stop signal and the train in front of me as soon as it was possible to do so.

*Charles Hudson*, engine driver, states: I have had about 35 years' service, 28 years as engine-driver, and have been used to working into New Street Station about 20 years. On September 4th I was off duty and on September 5th I came on duty at 8.30 a.m. to work the 9.45 a.m. express passenger train Bristol to Derby and the 4.15 p.m. express Derby to Bristol, expecting to finish duty at about 8.45 p.m. My engine was No. 34, an eight-wheeled engine, no wheels coupled, and six-wheeled tender, the driving wheels of the engine and all six wheels of the tender were fitted with the steam brake, and the train was fitted with the automatic vacuum brake, both brakes being applied by one lever from the footplate. I was

assisted from Derby to Birmingham by engine 1566 which was attached in front of my engine. We were about 20 minutes late from Derby, and about the same when we left Tamworth, the last stopping station. There was nothing unusual between Tamworth and the Grand Junction, at which place the distant signal was at danger, but the home signal was lowered when I sighted it. The distant and home signals worked from Proof House Junction, the distant signal worked from New Street No. 2 box, and No. 2 box home signal, applicable to No. 6 platform line, were all lowered. The continuous brake was applied slightly by driver Bennett when we were in the tunnel, and was immediately afterwards released; our speed on leaving the tunnel was about 10 miles an hour, and we entered the station at about five miles an hour, it being such, as far as I could judge, as to enable us to stop at the footbridge signal. I cannot say whether Bennett again used the continuous brake, as I had my head outside the weatherboard looking for the footbridge signal, and as soon as I sighted it at danger, I put my brake lever over to apply the brake. I sighted it when I was just passing No. 2 box. When entering the station my view of the bridge signal was, in the first instance, obscured by some carriages standing on the siding between Nos. 5 and 6 platform lines, and it was afterwards obscured by smoke and steam from the leading engine, but I saw the signal at danger immediately after passing No. 2 box. I observed this from my own side of the engine, as I can see better on that side than on the fireman's side. I did not see the vehicles standing ahead of the footbridge until the leading engine was very close to them; I did not do anything more as I had done all I could to bring my train to a stand at the bridge signal. The leading engine came in contact with the vehicles, but I cannot estimate at what speed, perhaps two or three miles an hour. Both myself and my fireman remained on the engine and did not feel anything of the collision. I quite understand the instructions respecting entering New Street Station at such a speed as to be able to stop at any point. I thought from the speed at which the train was running that the driver of the front engine must have seen that the stop signal was off for him. I am in the habit of running into Derby Station. If there is another train standing in that station I get a caution signal before entering. I think that it would be useful if there were a distant signal at Birmingham controlled by the stop signal. When I have a second engine behind me I should not like the driver of it to interfere with the brakes except in a case of emergency.

*Edwin John Davey*, fireman, states: I have had 12 years' service, eight years as fireman, and have been used to working into New Street Station for about four years. I was off duty on September 4th and was fireman to driver Hudson on September 5th, and worked the same hours as he did. I did not see the bridge signal at all; my mate saw it first and at once told me to hold tight; when he told me this we had just passed No. 2 cabin. We were coming in at ordinary speed. I did not see the train in front of us at all. As soon as the driver saw the signal he applied his brakes.

### *Conclusion.*

There is no dispute as to the circumstances under which this collision occurred.

The 4 p.m. Evesham train, having arrived at New Street Station at 5.34 p.m., had been brought to a stand at No 6 platform with its rear vehicle about half a carriage length

beyond the overbridge, in which position it was just clear of the clearance bar fixed on the line at that point.

On its arrival signalman Turner, who was on duty in No. 4 box, placed the platform stop signal at danger behind the train, and signalman Midwinter, in No. 2 box, placed the home and distant signals similarly at danger, and sent the "Train out of section" signal to the Proof House box.

Immediately after sending the last mentioned signal Midwinter was offered, by the signalman in Proof House box, the 4.15 p.m. train from Derby. As the line was clear up to the platform stop signal Midwinter was justified, according to his instructions, in accepting the train; he at once therefore did so, and lowered his home and distant signals for it, the platform stop signal being, however, still kept at danger.

The Derby train arrived at the station at 5.38 p.m., but the driver failed to bring it to a stand before reaching the platform stop signal, and it ran past that signal, coming into collision with the rear of the 4 p.m. Evesham train. The speed of the Derby train at the time of the collision is variously estimated at from two to four miles an hour.

Driver Bennett, who was in charge of the leading engine of the Derby train, states that his train emerged from the tunnel at a speed of about six or seven miles an hour, and that he passed No. 2 box at a speed of about five or six miles an hour. He had every intention of bringing his train to a stand at the platform stop signal, and he quite thought that he had it sufficiently under control to enable him to do so; but, when he was about an engine length from the bridge and saw the train in front of him, he then found that he was unable to stop his own train before his engine had run past the platform signal and come into collision with the brake van. Bennett attributes his inability to stop his train to an error of judgment on his own part in not applying his brakes sufficiently when entering the station.

It was urged on Bennett's behalf that, as the line was not clear for 400 yards ahead of the home signal, he ought to have been stopped at that point and warned that the station was blocked. This is undoubtedly the course which is usually followed when a train is admitted to a station which is not clear, but, as pointed out by the Company, it would, on account of the steep gradient and tunnel adjoining the home signal, be most inconvenient to stop trains at that point, and it is for that reason that the Company have issued the rule quoted above to the effect that the lowering of the home signal only indicates that the line is clear up to the platform stop signal, and that drivers must always be prepared to bring their trains to a stop at that point. The drivers, in fact, are warned that on entering this station they are always to act as though the station were blocked. This warning should, I consider, fully suffice, and driver Bennett admits that in this case he had every intention of acting on it.

It was also urged on Bennett's behalf that owing to there being carriages standing on the siding to the east of the line on which he was running he was by reason of the curve unable to see that the platform stop signal was at danger before he was close to the train in front of him. Even if this were the case it would be no excuse for his not conforming to the rule quoted above, viz., to have his train sufficiently in hand so as to stop at the platform signal; but, as a matter of fact, on visiting the spot Bennett admitted that from his engine he could have seen the signal when 70 yards distant from it. It is therefore clear that Bennett was not keeping as good a look-out as he should have done.

As regards the precise speed at which the train approached the station it is difficult to obtain any definite evidence, but the signalmen in Nos. 2 and 4 boxes both state that as soon as they sighted the train they noticed that its speed was higher than usual. Signalman Turner, in No. 4 box, thought that its speed was too high to allow of its being stopped at the bridge signal, and signalman Midwinter, in No. 2 box, was doubtful whether it would do so.

Driver Hudson, who was in charge of the second engine of the train, states that there was nothing unusual in the speed at which the train was entering the station, but he subsequently admitted that from the speed at which it was travelling he thought that Driver Bennett must have seen that the platform stop signal was lowered for him.

There can therefore, I consider, be little doubt but that the speed when entering the station was too high, and that driver Bennett had consequently not got his train sufficiently under control to be able to stop it at the platform stop signal. He probably did not make sufficient allowance for the fact that the train was a heavy one. The responsibility for this collision must therefore, I consider, rest solely on him.

As a driver's view of the platform stop signal would be considerably improved if the arm of that signal was repeated over the bridge as well as underneath it, the Company should, I think, consider the advisability of doing so.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
Lieut.-Col., R.E.

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## APPENDIX.

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### PARTICULARS OF DAMAGE TO ROLLING STOCK.

#### *Evesham Train.*

Passenger van 538 was thrown off the rails, and had one axlebox, one headstock, two end panels, end moulding, one folding door panel, one long stepboard, and one buffer casting broken, two solebar plates, two buffer rods, one triangular bar, two axleguards and two step irons bent, and body of vehicle racked.

Compo 830 had one headstock, one diagonal, two buffer castings, and two buffer casting pads broken, two solebar plates and two buffer rods bent, and two buffer casting pads damaged.

Third class 1243 had one buffer casting broken, one buffer rod bent, and body racked.

Compo 436 had body racked, and paint round buffer castings and step irons damaged.

Third class 1978 had two headstocks, one buffer casting, two quarter lights and one ventilator light broken, two end panels damaged, two buffer rods bent, and two seats and frames displaced.

Third class 1738 had two compartments telescoped and woodwork of same smashed, one headstock, two diagonals, one longitude, one solebar, two stepboards, one middlebearer, one axlebox, two buffer castings, one screw coupling, one A.V. train pipe, one headstock, face plate, and three step-irons broken, two buffer rods, one drawbar, two axleguards, two scroll irons, and brakework bent, one spring shoe, one axlebox, and one pair of wheels knocked from under, and the other pair of wheels thrown off the rails.

Passenger van 290 was damaged beyond repair,

with the exception of the wheels and a portion of the ironwork.

Engine No. 159A had right hand trailing buffer slightly bent, and swan neck of warming pipe bent.

#### *Derby Train.*

Passenger van 3105 had headstocks shaken.

Bogie compo 980 had one headstock cracked.

Bogie compo brake 924 had one headstock cracked, and one buffer rod bent.

Passenger van 576 was thrown off the rails, and had one end panel and one headstock end broken, one T branch pipe and three buffer rods bent.

Bogie third 1861 had two buffer rods badly bent, one buffer casting, one end panel, moulding, and one T branch hot water pipe broken, and one T branch hot water pipe bent.

Bogie compo 687 had a piece broken out of one buffer casting.

Passenger van 3066 had a piece broken out of one step board.

Engine 1566 had two buffers broken, buffer plate, and buffer plate angle iron and bracket bent. Right hand inside and outside frames bent at leading end. Right hand flanged platform plate bent, two footplate lamp irons broken, smoke box door and life guards bent.

#### *Details of Damage to Permanent Way.*

Two chairs broken; two bolts broken; four coping platform flags broken.

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Printed copies of the above Report were sent to the Companies concerned on the 8th November.

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## MIDLAND RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
9th August, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 12th ult., the result of my inquiry into the accident which occurred, on the 6th July, about 10.25 a.m., to a passenger train near Wath Road Junction on the Midland Railway.

In this case the 9.50 a.m. train from Sheffield to Morecambe, was approaching Wath Road Junction, Swinton, on the down fast road, when the engine and vehicles left the road at a set of disused facing points.

The train consisted of a four-wheels-coupled tender engine, chimney leading, one six-wheeled, and three eight-wheeled bogie coaches and a four-wheeled brake. It was fitted with the steam and automatic vacuum brake, which was in good working order.

Seven passengers in all complained of shock or injury, but none fortunately appear to have been seriously injured.

When the train came to a stand, the bogie and driving wheels of the engine were found to be standing on the up fast rails, but all the other wheels in the train were off the rails, the tender and leading coach approximately on the up road, the four rear vehicles on the down road.

A list of damage to rolling stock and permanent way is given in the Appendix.

### *Description.*

Wath Road Junction is the point where the Midland and North-Eastern Joint double line to York connects with the Midland Company's main line from Derby to Leeds.

The accident occurred on the main road, which consists of four lines of way running north and south approximately. The eastern pair of lines southward of the Junction are now used for up and down slow traffic, and the western pair for fast traffic. North of the Junction, on the main road, the eastern pair of lines are used for goods traffic only.

The Midland Railway Company have quite recently completed a further section of their Masborough to Royston widening, namely, from Kilnhurst to Darfield. Wath Road Junction lies in this section.

The work in the vicinity of Wath Road has consisted chiefly of a transposition of existing lines, and the relaying of certain portions of the permanent way.

Previous to the 30th June, the centre pair of lines were used for up and down passenger traffic, the outside lines for goods traffic. The set of western rails was appropriated for down goods trains. On the 30th of June the work in connection with the remodelling and transposition was commenced at Wath Road, but it was not found possible to complete the whole scheme on one day.

The new signal cabin at Wath Road Junction is situated on the west of the railway. About 50 yards south of the cabin a set of old facing points, leading from the old down goods line to the old down passenger line, had not been removed on the 30th June. The removal of this set of points was arranged to be carried out with other work on the succeeding Sunday, 7th July. In the meantime the points were secured, and the rod connections and safety appliances removed. Trains ran with safety over these points on the new down fast road from the 1st July up to the time of the accident on the 6th July.

The main line is practically straight on both sides of Wath Road Junction, and the gradients concerned are easy, varying from 1 in 419, rising from Swinton, the station south of Wath Road, to 1 in 359 falling at the Junction.

### *Evidence.*

*Henry Thompson*, signalman, states: I have had 27 years' service with the Company, 24 years as signalman, and have been at Wath Road Junction about 12 years. On July 5th I came on duty at 6 a.m. and left duty at 2 p.m., and on July 6th I came on duty at 6 a.m. to remain until 2 p.m. The 8 a.m. express passenger train from Derby to Leeds passed my post on the down fast line at 9.34 a.m., and I gave "line clear" for the 9.50 a.m. passenger train (Sheffield to Morecambe) to approach from Swinton Junction at 10.8, and at once obtained "line clear" for it to proceed to Manver's Main Colliery Sidings. I lowered my home and starting signals at once, the distant signal being disconnected and at danger in consequence of the speed restriction (20 miles an hour) past the place. I received the "train entering section" signal from Swinton Junction at 10.12 and the train arrived at 10.14. I was standing in the box watching the train approach, and as near as I can say, the speed was about 15 miles an hour. Steam appeared to be shut off. The first thing I noticed was the oscillation of the carriage next to the engine a short distance on the south side of my box. The engine came to a stand on the up fast line, the tender was close to the engine, practically in the six-foot space, and all the carriages were off the rails, the rear van being about opposite my box. I immediately placed my down fast line signals at danger, and

advised Swinton Junction and Manvers Main Colliery Sidings, the signal-boxes on each side of me, what had occurred. I also advised the stationmaster at Swinton by means of the telephone, and requested that medical assistance and the break down vans should be obtained. I had not received any request from the platelayers to stop any train, and had no idea that the running rails were being interfered with, although a large number of men were at work near my box. It was their duty to have informed me of their intention to move any points on the roads before commencing the work. Ganger James Cruise was in charge of the platelayers, and he had made no communication to me of any sort. I knew the points were in existence and were properly secured, having been in this condition since the Sunday previous to the accident.

[For regulations, see p. 221 of Company's Appendix to Working Time Table.]

*George Pitcher*, passenger guard, states: I have had 18 years' service with the Company, 5 years as passenger guard, and have been used to working passenger trains past Swinton the whole of the time. On July 5th I came on duty at 9.30 a.m. and finished duty at 9.30 p.m., and on July 6th I came on duty at 9.30 a.m. to work the 9.50 a.m. passenger train (Sheffield to Morecambe), and passenger trains from Morecambe to

Sheffield and Nottingham. My train consisted of engine No. 1754 and 5 (= 6½) vehicles in the following order from the engine :—

- Six-wheeled third, No. 1241.
- Eight-wheeled bogie composite, No. 762.
- Eight-wheeled bogie third, No. 760.
- Eight-wheeled bogie composite brake, No. 136.
- Four-wheeled van, No. 121.

We left Sheffield right time. We stopped at Swinton Station, and were due from there at 10.11. We left at 10.12. having been delayed one minute by engineering slack. I estimate that there were from 120 to 130 passengers in the train. I saw the Swinton Junction home and starting signals lowered for my train to proceed, but the Wath Road Junction distant signal was at danger. On nearing Wath Road Junction I saw that the home and starting signals worked from that box were lowered, and when a short distance from the signal-box, I was standing up in the van, and felt a kind of rebound with the train. Our speed might then have been from 16 to 17 miles an hour. I got hold of the brake handle and kept my feet. I heard a scream from the passengers, and lifted the valve of the automatic vacuum brake, but found that it had already been applied by the engine driver, and on looking out I found that the whole of the train had left the rails, and was partly on the up, and partly on the down fast line. I at once alighted and communicated with the passengers, three of whom complained of suffering from shock. I went to the signal-box and asked the signaller to block both roads, and sent for assistance. Another train was obtained from Sheffield and the whole of the passengers transferred to it except one lady, who returned home to Swinton. One passenger who complained returned to Masborough from Wath, and the whole of the others proceeded on their journey. One who went forward to Morecambe complained of being shaken. The bogie and leading coupled wheels of the engine were on the up road metals; the remaining wheels of the train were all off the rails. There were no couplings broken.

*Francis John Bull*, engine driver, states: I have had 27 years' service with the Company, 14 years as engine driver, and am used to working past Swinton all the time. I was off duty on July 5th, and came on duty at 1.40 a.m. on July 6th to work passenger trains from Leeds to Leicester, Leicester to Sheffield, and Sheffield to Leeds, expecting to finish duty at about 12 noon. I was engine driver of the 9.50 a.m. passenger train from Sheffield to Leeds. My engine was No. 1754, a four-wheels-coupled passenger engine with a leading bogie and a six-wheeled tender, and the train consisted of five (equal to six and a half) vehicles. The driving and trailing wheels of the engine and all six wheels of the tender were fitted with the steam brake, and the train was fitted with the automatic vacuum brake, both brakes being applied by one lever from the foot-plate. The brake was in good working order with 20 inches of vacuum when we left Swinton. We left Sheffield right time, stopped in the ordinary way at Masborough, were slackened by engineering operations at Kilnhurst, and stopped at Swinton in the ordinary way. On leaving Swinton, the Swinton Junction home and starting signals were lowered, and the Wath Road Junction distant signal was at danger. When approaching Wath Road Junction I was running at about 15 miles an hour, having only started from Swinton Station, and there being a speed restriction of 20 miles an hour at the place. I

sighted the Wath Road Junction home signal off, but did not see the starting signal before the accident. When near to the Wath Road Junction Signal Box I felt my engine lurch and found we had left the rails, and I at once applied the continuous brake and reversed my engine. My engine came to a stand with the four wheels of the leading bogie and the driving wheels upon the rails of the up fast line. The trailing wheels of the engine were off the rails, and the tender was off the rails, practically in the six-foot way, and the whole of the vehicles composing the train were also off the rails. I at once went to the signal box to make sure that the obstruction was being properly protected. When approaching Wath Road Junction a platelayer was exhibiting a green flag, but I did not see any signal to stop nor hear anyone shout. There were a large number of workmen about, but I did not see anyone in the four-foot way of the line upon which my train was running. All were standing clear at the side. I was not injured in any way, and worked my engine light to Leeds after it had been rerailed and examined. I heard no complaints from passengers.

*Joe Fardell*, fireman, states: I have had seven years' service with the Company, five years as fireman, and have been used to working past Swinton all the time. I was off duty on July 5th, was fireman to driver Bull on July 6th, and I worked the same hours that he did. I have heard the statement made by my driver read, and it is correct. I was not injured in any way. A man exhibited a green flag on my side of the engine when we were leaving Swinton Station.

*Richard Bird*, permanent way superintendent, states: I have had 31 years' service with the Company, 15 years as a permanent way superintendent, and have been in charge of the Sheffield district two years. I have during the past two years had in hand the widening and remodelling of the main lines between Wath Road Junction and Masborough, and it had been arranged to transpose certain of the lines and bring into use new junctions at Wath Road Junction, Swinton Junction, and High Thorn Junction, on Sundays June 30th and July 7th, the magnitude and complication of the work being such as to prevent its being carried out on one Sunday. The transposition of the lines was carried out between Wath Road Junction and High Thorn Junction, and new junctions at High Thorn, Swinton, and Wath Road were brought into use on June 30th as arranged, and it was intended to complete the remodelling of the Wath Road Junction and carry out other work, including the removal of a large amount of disused permanent way, on the following Sunday, July 7th. Amongst the disused permanent way that I had arranged to be removed on Sunday, July 7th, was an old facing connection between the down goods and the down passenger line on the north side of the old junction at Wath Road Junction, the down goods line having been made a down fast line on Sunday, June 30th. I instructed permanent way inspector Colleyshaw to have these points as well as others properly secured before the lines were reopened on June 30th, and so kept secured until they were removed on Sunday, July 7th. I told him to reverse a chair. He would drive a spike against one switch and block the other by keys, the stretcher rod being left in. I told the inspector that the securing of these points was to be carried out by the same two or three men who had done the work elsewhere.



*George Colleyshaw*, permanent way inspector, states: I have had 30 years' service with the Company, 13 years as permanent way inspector, and have been in charge of the Masborough district six months, and during that time have, under the supervision of Mr. Bird, the permanent way superintendent, had in hand the widening and remodelling arrangements between Wath Road Junction and Masborough. In consequence of the work that had to be carried out I had asked for engine drivers to be instructed not to exceed a speed of 20 miles an hour on any of the lines, and a printed instruction was issued accordingly, and the Company's regulations were complied with as regards the cautioning of the drivers at all the points affected. I received instructions to transpose certain of the lines between Wath Road Junction and High Thorn Junction, and to bring into use new junctions at High Thorn Junction, Swinton Junction, and Wath Road Junction on Sunday, June 30th, which was done, and it was arranged to complete the remodelling of Wath Road Junction and to do other work, including the removal of disused permanent way materials from the running lines, on Sunday, July 7th, that could not be dealt with on Sunday, June 30th. Amongst the permanent way material that required to be removed was a cross-over road from the old down goods to the down passenger line on the north side of the old Wath Road Junction, the former having become the down fast line and the latter the up fast line on June 30th, and it was intended to remove these on Sunday, July 7th. I received instructions to have these points properly secured on Sunday, June 30th, and to keep them so until removed, and I saw that this was done by turning a slide chair round to keep the running switch rigid against the side rail, the chair being spiked to the timber and the switch further secured by a spike being driven into the timber against it. One of the ordinary stretcher rods was used to connect the switches, the locking plate having been removed, and, in addition, two keys were wedged between the side rail and the disused open switch. A large number of men were at work at the place, and I visited it every day between June 30th and July 6th, and satisfied myself that the points were properly secured. The last time that I visited this place prior to the accident was at 9.15 a.m. the same morning, and I then gave instructions to extra ganger James Cruise to clear away all the loose permanent way material, which was necessary to prepare for the operations to be carried out the following day (Sunday). I then walked to Swinton Station to see another gang of men at work at that point, and whilst there heard of the accident. I at once returned to Wath Road Junction and found that the 9.50 a.m. passenger train from Sheffield to Morecambe had left the rails. On examining the permanent way I found that the stretcher rod had been removed from the switches of the old facing connection from the down goods to the down passenger line, and the disused open switch partly twisted over in the four-foot space with two keys lying flat on the front slide chair, the running switch being still secured as I had previously observed it. I at once arrived at the conclusion that the accident had been caused by the stretcher rod being removed from these switches, and the keys removed from the open switch, which allowed the open switch to close to the side rail and the engine so ran between the switches. This work had been done without my instructions, and I subsequently found that it had been done by extra platelayer Philip Donohoe. If the ganger had intended or desired to remove

the switches, he should have acted in accordance with the rule on page 211 of Appendix to the Company's Working Time Table.

*Joseph Hancock*, length ganger, states: I have had 12 years' service with the Company, and have been a ganger five years, and in charge of the Wath Road length two years. I examined the points of the old connection from the down goods to the down passenger line on the morning of July 1st. A slide chair was reversed to keep the running switch close to the side rail, and the chair was spiked to the timber and a spike was driven into the timber near to its point. The disused switch was connected to the running switch by one tie rod, and two keys had been wedged between the disused switch and the side rail on the front point chair. I examined these points every day up to July 6th, and saw that they were kept properly secured, and they were still secured, as before described, when I examined them at about 7.15 a.m. on Saturday, July 4th, both keys being in the proper position behind the open switch at that time.

*James Cruise*, extra ganger, states: I have had 13 years' service with the Company, have been an extra ganger about five years, and have been working in the neighbourhood of Swinton in connection with the alteration of the permanent way since June 24th. On July 5th I came on duty at 6 a.m. and left duty at 5 p.m. On July 6th I came on duty at 6 a.m. and took my gang to Wath Road Junction to make preparations for carrying out work the following day (Sunday). About 9 a.m. Inspector Colleyshaw came and told me to clear away all the loose rails from the permanent way, and then to turn out and clear away the rails that were in the chairs but not in use, that had formed the cross-over road from the down goods to the down passenger line, and I was engaged carrying away the loose rails which lay on the ground when the 9.50 a.m. passenger train from Sheffield to Morecambe was approaching, but no instructions had been given by me to any of my men to interfere in any way with any points or to turn out any of the rails, neither did I see anyone interfere with the points, and was not aware that anyone had done so until after the accident. Before commencing to remove the cross-over rails I should have put a red card in the box and sent a man out three-quarters of a mile. I should not have commenced doing any work of this description until I had received the permission of the signalman. Donohoe was working during the morning with the rest of my gang moving rails to the up side, but I did not notice he had left the gang and was working at the points. Donohoe has been with me four weeks on this occasion, but previously worked with me before Christmas.

*Philip Donohoe*, platelayer in the extra gang, states: I have worked for the Midland Railway Company on and off for five years, and the last time commenced on Friday, June 14th. On July 6th I was working with ganger Cruise at Wath Road Junction. After breakfast we commenced carrying away the permanent way material that was lying loose on the line. Without any instructions from my ganger I brought a hand hammer from the platelayers' hut and commenced to take out the stretcher rod from the old facing points which formed the connection from the down goods to the down passenger line, and also took out the key between the disused open switch and the side rail, as I thought this formed part of the disused material we were to

carry away. I was in the act of replacing the pins and cotters in the end of the stretcher rod to prevent them being lost when I noticed a train approaching, and about the same time I noticed that the loose switch was up against the side rail. I had not time to open the switch, or to put a key in or do anything before the train was upon me, and I dropped the stretcher rod on the down side of the line and got out of the way of the train on that side myself. I had no idea that what I was doing would cause a train to leave the rails, and

until I saw the loose switch up against the side rail it never occurred to me that a train could leave the rails, and I am very sorry that I took out the stretcher rod and interfered with the points without any instructions. I was not at work at the switches more than two or three minutes. I did not notice the left hand switch had been moved close up to the side rail when I took off the stretcher rod, and did not see that it was in this position until the train was close to me.

### *Conclusion.*

A perusal of the evidence given by the permanent way staff will clearly explain the immediate cause of this accident.

An extra gang of platelayers under ganger Cruise was engaged in the vicinity of Wath Road Junction, on the morning of the day of the accident, in removing the loose rails, that were lying in the permanent way on the main line, and making preparations for the next day's work.

About 9 a.m. inspector Colleyshaw visited the spot, and the only discrepancy in the evidence appears to be with regard to the exact orders he gave ganger Cruise. Inspector Colleyshaw states he instructed him to remove "loose" permanent way material only. Cruise states that in addition to the removal of this material, he was ordered to clear away the disused rails in the chairs of the old cross-over roads.

Cruise appears to have been aware that, before he could have done any work in connection with the old cross-over roads, it was his duty, in accordance with the Company's regulations (p. 211 of the Appendix to the Working Time Table), to require the signalman at Wath Road Junction, by the presentation of a red danger card, to stop all down or up trains, and send a flagman out to place detonators on the line.

Platlayer Donohoe, after assisting with the remainder of the gang in removing the loose rails, states he proceeded, without instructions from his ganger, to the facing points on the down line south of the cabin. He then knocked out the keys between the left hand open switch point and the rail, and after taking out the pin and cotter holding the stretcher rod, he moved over the switch point to allow him to release the stretcher rod. He was in the act of replacing the pin and cotter, and the switch must undoubtedly have been lying close to the stock rail, when he heard the passenger train approaching. Donohoe apparently either had not the time or the intelligence to open the switch and wedge it in position with the oak key before the engine was on the points.

With both switches against the rails, the derailment of the train occurred as a matter of course. The engine bogie wheels got between the two switches, and, the right hand rail proving the weaker, the engine and following coach took the cross-over road on to the up fast line. The road was much broken up, and the four vehicles in rear kept their direction on the down fast road, though all the wheels were off the rails. Curiously enough none of the couplings broke.

The train appears to have been travelling at a speed of from 15 to 20 miles an hour. and the driver must have applied his brake with promptitude, for the engine came to a stand about 120 yards from the disused points.

It was fortunate that, owing to the alterations in the permanent way, a speed restriction of 20 miles an hour was in force. It is still more a matter for congratulation that no train had been signalled on the up fast road, otherwise the accident might have assumed very serious proportions.

I find, therefore, that platlayer Donohoe is responsible for this accident, in that, without instructions, and contrary to regulations, he loosened the disused switch and thereby caused the derailment.

The want of intelligence he displayed on this occasion emphasizes the importance of exact and definite orders, and the necessity for strict discipline in all operations in connection with running roads. As I have pointed out there appears to be some doubt if inspector Colleyshaw's orders were sufficiently exact for men of Donohoe's stamp. That it should have been possible for Donohoe to be employed removing switches without the knowledge of his ganger, shows that an absence of discipline existed in Cruise's gang of platelayers. Either Cruise did not possess sufficient control of his gang, or the size of the gang, considering the stamp of man employed, was too large for proper supervision.

I have, &c.,

The Assistant Secretary,  
Railway Department, Board of Trade.

J. W. PRINGLE,  
Major, R.E.



## APPENDIX.

## DAMAGE TO ENGINE, ROLLING STOCK, AND PERMANENT WAY.

Engine No. 1754.—Saddle slide, side spring, three axle boxes of bogie and rail-guards broken; axles of bogie wheels and driving crank axle bent; tender brake-work bent and damaged.

*Rolling Stock.*

Midland Third Class No. 1241.—Three axle boxes, a headstock, end pillar, short step-board, long step-board, bridle bolt, two brasses, axle-box front plate, five wheel bolts, and two quarter lights broken; quarter light cracked, end step-iron, two other step irons, and six axle guards bent; hoop on gas reservoir displaced, and under-frame and body badly shaken.

Midland Bogie Composite No. 762.—Two headstock ends, two sole-bars, end-pillar, one piece of beading, end cornice piece, one side cornice piece, two roof boards, and a bogie bolster damaged; two pieces of footboard, two bogie chain link plates, a bogie rubbing plate, a step-iron, six step-iron bolts, and one quarter light broken; screw coupling shackle bent, three elliptical bearing springs displaced, wheels grazed, body and bogie shaken, and a hand-rail bent.

Midland Bogie Third No. 760.—Two axle boxes, four pieces of footboard, two step-irons, a buffer rod, and two end panels broken; both sole-bars damaged; an axle bent, wheels badly grazed, body and bogies badly shaken, two sole-bar plates and a quarter light broken; one buffer rod, two step-irons, two screw coupling shackles, a lamp iron, and a quantity of gas piping bent.

Midland Lavatory Bogie Composite No. 136.—Two axle boxes, and a footboard broken; a sole-bar damaged, three elliptical bearing springs displaced, and wheels badly grazed.

Midland Passenger Van No. 121.—One axle-box and a gas gauge dial and glass broken; a buffer rod and two brake triangular bars bent, and wheels grazed.

*Permanent Way.*

110 sleepers, 5 crossing timbers, 380 chairs, 150 spikes, 840 plugs, 1 set of points and 2 crossings, 6 benches, 8 roller boxes, and rodding damaged.

Printed copies of the above Report were sent to the Company on the 11th September.

## NORTH EASTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
7th August, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 26th of July, the result of my inquiry into the circumstances under which a collision occurred about 10 p.m., on the 20th July, near Polam Junction, Darlington, on the North Eastern Railway, between two passenger trains.

In this case as the 8.55 p.m. up passenger train from Saltburn to Darlington, consisting of an engine and nine vehicles, was running through Polam Junction, it came into collision with the engine of an empty passenger train of 16 vehicles, which was standing on the main line foul of the junction.

The speed of the up train at the time of the collision was not great, and there was no loss of life caused by the occurrence, but 20 passengers have complained of personal injuries received.

The engine and six of the vehicles of the up passenger train were damaged, but none of them were derailed. In the empty passenger train the engine was derailed, and both it and two vehicles of the train were damaged, and the train parted near its centre.

The up passenger train engine was a four-wheels-coupled tender engine, fitted with the Westinghouse automatic brake, working blocks on the four coupled wheels and on the six wheels of the tender. The train consisted of the following vehicles arranged in the order given :—

						Wheels.
Two third class carriages	...	...	...	...	...	4
One third class bogie	...	...	...	...	...	8
Two composites	...	...	...	...	...	8
One third class bogie	...	...	...	...	...	8
One third class brake	...	...	...	...	...	8
Two horse boxes	...	...	...	...	...	4

The whole of these vehicles were fitted with the Westinghouse automatic brake working blocks on all wheels.

The engine of the empty passenger train was similar to that of the up passenger train, and it had the following vehicles attached to it :—

	Wheels.
One saloon ... ..	4
Two third class brakes ... ..	6
Two vans ... ..	6
Four composites ... ..	6
Seven third class carriages ... ..	6

The length of this train was approximately 628 feet.

The damage to rolling stock is given in the Appendix ; that to permanent way was nil.

#### *Description.*

Polam Junction, where this collision occurred, is situated about 420 yards to the south of the south end of Darlington Station on the North Eastern Railway Company's main line between York and Newcastle. The main lines run through the junction in a direction which is almost exactly north and south, the up line being on the east side.

At Polam Junction there is a double junction between the main lines and a double line branch running between Saltburn and Darlington ; these branch lines approach the junction from the south-east, the up line being, however, in this case on the west side.

The points and signals connected with this double junction are worked from the Polam signal box, which is situated on the east side of the line, and about 90 yards south of the actual junction between the two sets of lines.

The passenger train from Saltburn which was concerned in this collision was travelling on the up branch line from Saltburn, and it was at the point where that up branch line crosses the up main line that it came into collision with the engine of an empty passenger train which was standing on the latter line.

The main lines northward from Polam Junction do not pass through Darlington Station, but run to the eastward of it, so that through trains need not pass through the station at all. But for stopping trains there are up and down loop station lines which have connections with the up and down main lines respectively on either side of the station ; the connections on the south side of the station between the main lines and the station loop lines are situated at a point 200 yards to the south of the south end of the station.

The up station line runs along platform No. 1 which is on the extreme east side of the station, and the down station line along platform No. 4 on the extreme west side of it. Between these two lines are two bay platform lines running into the station from the south alongside bay platforms Nos. 2 and 3. These two bay lines both have connections with the up station line to the south of the station, the connection between the up station line and No. 2 platform line being at a point 135 yards south of the south end of the station.

The only other line in the station connected with this accident is a goods line known as the Back Road. This line runs parallel to the up station line, on the east side of it, and has a connection with it to the south of the station.

The empty passenger train concerned in this accident was being shunted from the Back Road on to the up station line, and thence on to the up main line, so as to be then backed through the up station line into No. 2 bay platform line.

All the points and signals at the south end of Darlington Station are worked from the South signal box. This box is situated on the west side of the line 220 yards to the south of the station.

The distance between the South signal box and the Polam signal box is 200 yards. The Company has exemption from block working through Darlington Station as far south as the South signal box, but between that box and Polam box block working is in force.

As a further precaution against accident the Polam signal box has a release lever which gives the signalman in it control over the up starting signals in the South signal box, so that no train can start from the latter box either on the up main line or on the up platform line without the permission of the Polam box. Similarly the South signal box has control over the signals in the Polam box for trains running from the latter to the former.

The collision, it should be noted, occurred a few minutes after 10 p.m., just after there had been a change of signalmen in both the South signal box and the Polam signal box. The weather was fine, and the night is reported to have been dark but clear.

*Evidence.*

*Layfield Allen*, states: I have been 39 years in the service of the Company, during 31 years of which I have been a driver. On the 20th July I was in charge of an empty passenger train at Darlington Station. My engine was a four-wheeled coupled tender engine, fitted with the Westinghouse brake. I came on duty on that day at 6.15 p.m. to work until 4.15 a.m. on the 21st instant. I came off duty at 1 p.m. on the 19th July. About 9.30 p.m. I received instructions to connect my engine to two empty passenger trains which had arrived from Tebay and Crook respectively. I believe I had 16 vehicles attached to my engine. The first instructions I received were to draw the train from No. 1 platform line into the back road and to drop one vehicle. I did so. The shunter then gave me a hand lamp signal to move forward. I went forward. The shunting signal No. 24, leading from the back road to No. 1 platform road, was off for me. The signal for running from No. 1 platform line to the main line was also off for me, viz., No. 31. I know Darlington Station very well, and have been employed here for the last 20 years. The fact of No. 31 being lowered gives me permission to run up to Polam cabin home signal, and accordingly I ran up to those signals. I carry out this operation nearly every night, and I brought my engine to a stand at the point I usually do so, viz., just behind the Polam cabin home signals. My shunter then gave me a hand signal to pull a little further on, and I did so and ran past the home signals a short distance beyond the home signal in a position where my engine was fouling the junction with the Saltburn lines. It is a common occurrence at this point to run past these signals when they are at danger, for shunting purposes. I am quite aware of the rule that a driver should not run past a signal when at danger. On this occasion I was urged by my shunter to go a little further on, and I did so. On previous occasions at this point I have myself gone past the signal at danger. I have never reported to anybody that I was receiving instructions to go past signals at danger. The shunter gave me a signal to stop, and when I had stopped I reversed my engine, and the shunter signalled me to move back. I gave my engine steam, but it refused to move at first, and I had to move my engine one yard further forward before it would reverse. I was just on the move back when something struck me. I did not know what it was, and I had not seen it come. My opinion was I was perfectly safe because I was standing on the locking bar of that junction. I got a nasty shaking, but was not seriously injured. My engine was damaged and derailed. It was a dark but clear night. It was not raining. The brake had the train well under control, and I had no difficulty in stopping it. My explanation of not having seen the Saltburn train before the collision occurred is that I was looking back to see my shunter. I cannot say what my fireman was doing at the time of the collision. I was about to back the empty carriages into No. 2 platform up line. I was of opinion that whilst my train was standing on the locking bar the points could not be moved at all; and if that was the case there was no possibility of a collision at the junction. I am still of the same opinion.

*John Watson Longbottom*, states: I have been 12 years in the service of the Company, during eight of which I have been a fireman. I was on duty on the 20th with driver Allen, and I was

with him on the engine which was moving the empty vehicles at Darlington Station. The first I knew of the collision occurring was feeling the shock of it. At the time of the collision we were just on the point of moving back and I was looking backwards on that account, that was why I did not see the train approaching. Our engine had just started to move before the collision occurred. I have been employed at Darlington Station about 18 months, and have often taken part in the same operation. I myself have frequently seen drivers running past the Polam home signals at danger. In fact, it is a general occurrence—I mean a general custom when shunting with empty stock. I have heard the driver's evidence read over, and concur with it.

*Shunter Joseph Philipps*, states: I have been in the service of the Company 11½ years, and have been a shunter for nearly one and a half years. I have spent the whole of the time at Darlington Station, and know it well. On the evening of the 20th July I arranged to connect the vehicles from the 9.25 p.m. Tebay train and the 9.41 p.m. Bishop Auckland train together to form a 10.25 p.m. train to Saltburn. I connected a shunting engine on to the vehicles of these two trains on No. 1 platform line. I instructed the driver to draw into the back road and stop so that I might disconnect a fish waggon which was in the rear of the train. He did so, and I disconnected the waggon. I then gave him a signal to go forward so that he might back the train into No. 2. I had arranged with the signalman in the Station East cabin what I wanted to do and I believe he made arrangements with the signalman in the South cabin. I cannot say whether the signals were off or not for the driver, but I depended on his seeing to that point. The train went forward and came to a stand with its rear vehicle about two carriage lengths behind the trailing points leading to No. 2 platform line. I cannot say where the engine was. I gave the driver the signal to pull forward, which he did, and after the rear of the train was clear of the points I gave him the signal to stop. I cannot give any evidence as to where the engine was. When the points had been set I then gave him the signal to set back into No. 2. It was about two minutes before he could start, but he was just on the move when I heard the noise of the collision occurring. There were 16 vehicles on the train at the time. Two of the vehicles of the train were damaged, but none of the wheels were derailed. The train divided about five vehicles behind the engine. I have frequently before carried out this shunting operation. When shunting operations are being carried out, I have sometimes in daylight noticed drivers run past their signals at danger. I have always considered that the instructions from me to a driver to pull forward do not authorise the driver to run past the Polam home signals at danger. Every evening vehicles of these two trains are put together to form the train to Saltburn. On this occasion there were three vehicles more than usual.

*Jessie Thirkell*, driver, states: I have been in the service of the Company 45 years, during 38 of which I have been a driver. On the 20th July I was driving the 8.55 p.m. up train from Saltburn. I came on duty on the 20th July at 3.30 a.m. to work until 1.30 a.m. on the 21st. I came off duty at 4 p.m. on the 19th. My engine was a four-wheeled-coupled tender engine, and was fitted with the Westinghouse brakes working

blocks on the four coupled wheels and six tender wheels, and with a hand-brake working blocks on the tender wheels. My train consisted of the following vehicles attached to the engine in the order given :—

Two four-wheeled third-class carriages,  
Five eight-wheeled bogies,  
Two empty four-wheeled horse boxes,

the eight-wheeled carriages having brake-thirds at each end, and the guard was riding in the rear one. The train was fitted throughout with the Westinghouse automatic brakes, the brakes being in good order. About 10.3 p.m. we arrived at Geneva cabin. We were about five or six minutes behind time. When we were approaching Geneva cabin the home signal was at danger, but just before we came to a stand it was pulled off. When I reached the distant signal for Polam cabin that signal was at danger. At the time of passing this signal we were going at about nine or ten miles per hour. I continued at the same speed up to the home signal. When I reached the home signal it was off for me, but the distant signal for South cabin, which is underneath it, was at danger. I continued on at the same speed, and my engine came into collision with an engine standing upon the crossing. As I was coming round the curve I saw a red light ahead of me, but I thought it must be an engine standing upon the goods independent. It went out of sight as I came round the curve, and I did not see it again until I was within three yards of it. I am not prepared to say that it was not in view before this point. My attention was taken up in looking for my signals. When I saw the engine ahead of me I at once put the brake on. The brake acted well, but there was not time for it to reduce the speed at all. My fireman was looking out on the other side of the engine, and he never warned me of there being an engine on the line. My engine was damaged, but was not derailed; my train was also somewhat damaged. The fireman said nothing to me at all about my being clear of anything. I cannot say whether there was any steam obscuring my view of the engine in front of me.

*Joseph Henry Moutrey*, fireman, states: I have been in the service of the Company 12 years, during 8 of which I have been a fireman. On the 20th July I was working with driver Thirkell, and I was with him on the engine of the 8.55 p.m. up train from Saltburn. I remember our arriving at the Polam home signal, but I cannot say for certain whether it was on or off when we were drawing up to it, but I am sure it was off when we passed it. Just as we were coming round the curve I saw something dark to the front of the engine. It was only a few yards from me when I saw it. It had a red light on it, but I did not see it until we were close on it. The reason for my not seeing this red light sooner was my being on the wrong side of the curve. I believe my driver saw it, but he thought it was on another line. Directly the driver saw it he put the brake on. The brake appeared to act, but did not reduce the speed. I estimate our speed on passing Polam cabin at eight or nine miles per hour. When I saw the obstruction in front of me I called my mate's attention to it, but I do not know whether he heard me. He was applying the brake at the time.

*George Vitty*, signalman, states: I have been 28 years in the service of the Company, during the whole of which time I have been a signalman.

I am employed in the Darlington South cabin, and have been there about 11 years. I came on duty on the 20th July at 2 p.m. to work till 10 p.m. I came off duty at 10 p.m. on the 19th July. About 9.54 p.m. the East signal box offered me an empty passenger train on the up passenger independent. This was subsequently cancelled, and he told me that it was coming on the back road. I lowered Nos. 24 and 31 signals for it to run on to the up main line. I did this without offering the train to Polam cabin at all. The lowering of No. 31 signals admits the train into the next block section. There is block working between South cabin and Polam cabin. I did not offer the empty carriage train to Polam cabin, because I knew it was only entering the section for shunting purposes. I can refer to no local rule which allows me to permit a train to enter the next section without it being duly offered to and accepted by the next box. It has always been customary since I have been at Darlington to allow a train to enter that section for shunting purposes without its being accepted by Polam cabin. The train ran past my box about 9.58. I came off duty about ten o'clock, and knew nothing more about it until the following morning. I had not to ask Polam cabin to release lever No. 32, as it was already released, so I was able to pull over No. 32, which released No. 31. The release had been off for a long time—in fact, I do not think it had been on that day at all, and further, the lock is not kept on at all. I was succeeded at 10 o'clock by signalman Robson. I told him there was an empty passenger train standing on the main line which had to be backed into No. 2 passenger line. It is not customary for Polam cabin to admit trains into the section without first offering them to me.

*John Robson*, signalman, states: I have been about 27 years in the service of the Company, during nearly the whole of which I have been a signalman. On the 20th of July, I came on duty at 10 p.m. in the South cabin to work until 6 a.m. the following morning. I came off duty at 6 a.m. on the 20th. I have been employed between three and four years in the South End box, and knew it well. When I took over duty from signalman Vitty, he told me that an empty train was coming out of the back road to go on to No. 2 platform line. This was just about two or three minutes to 10 o'clock, and at that time the train was drawing forward past my box. Vitty told me that the signals were off for the train to run from the back line to the main line. At the same time that he was telling me this, Polam cabin offered us the Saltburn train. At 9.59 p.m. I accepted the Saltburn train from Polam cabin, at that time the empty vehicle train had come to a stand at the home signal and was endeavouring to set back. I knew that this train had not been offered to Polam cabin. I accepted the Saltburn train, and pulled over No. 54 release lever, which enables Polam cabin to pull off No. 4 home signal. Then I gave the shunter the signal for the empty train to set back to No. 2, the empty passenger train endeavoured to set back, and at the second attempt it appeared to me to break the couplings. This was the first intimation to me that a collision had occurred. It is usual, for shunting purposes, to allow trains to pass my cabin in the direction of Polam cabin without being accepted by that cabin. I cannot refer to any rule which authorises me to do this, but it has been the custom to do so ever since I have been at Darlington. Polam

cabin has the control over No. 31 signal, and I cannot pull it over until Polam pulls over his release lever. Polam usually has this release lever pulled over, but I have had sometimes to ask him for it. Had I been on duty before 10 o'clock I should have acted exactly as signalman Vitty did. I cannot refer to any rule which states in which position the release lever should be normally kept.

*John Vitty*, signalman, states: I have been in the service of the Company 20 years, and have been signalman or assistant signalman all that time. I have been employed in the Polam cabin seven years. I came on duty on the 20th July, at 2 p.m., to work until 10 p.m., and came off duty at 10 p.m., on the previous night. At 9.59 p.m., Geneva cabin offered me the 8.55 p.m. train from Saltburn. At that time my mate had arrived to relieve me, so he took over the matter for me, and I myself took no steps whatsoever in the matter. Previous to this time I had heard nothing whatsoever about this train, and I know nothing about it. I had seen nothing of it. As I was opening the door to go home I saw the empty passenger train just before the Saltburn train came into collision with it. Up to that time I had seen nothing of the empty passenger train. There is a lever in the Polam cabin which controls the up main line signals from South cabin, and until that lever is pulled the South cabin men cannot lower the up signals. I had not pulled off my release lever to put the empty train to the main line, nor was the empty passenger train ever offered to me by the South box. It was, however, possible for No. 31 lever at the South cabin to have been pulled over as my release lever was over. This release lever was over when I went to work at 2 p.m. I did not put it back because as a rule we do not use this lever. The normal condition of the release lever in Polam cabin is "pulled over." This takes away from me all control over the South cabin up signals. I cannot say why this is done, but it has been the custom ever since I have been in the box for this release lever to be left "pulled over." I know of no instructions as to which position that release lever should usually be kept. It has been customary for trains to be allowed to enter the section between South cabin and Polam cabin without their being offered to and excepted by Polam cabin. This is done only for shunting purposes. I do not know that we have any rule allowing this to be done, but it has been customary ever since I have been in the box for this to be done. I have known of many cases of trains in shunting operations running past our home signals when they were at danger. I have never taken any steps to report this fact. This, so far as I know, has only been done with empty passenger trains. The reason I have not reported on these occasions is because it is a regular custom to do so. I have sometimes been warned that there were long trains to be shunted, and on those occasions I have set my points for the branch and pulled off my signal for the train and the signalman at Polam cabin is always prepared to do this. When I handed over the cabin to my successor the points on the up main line were set for the main line.

*William Nottingham*, signalman, states: I have been in the service of the Company 31 years, during nearly 27 of which I have been a signalman. I have been employed in the Polam cabin during the last six years. I came on duty on the 20th July, at 10 p.m., to work until 6 a.m. the following morning. I had come off duty at

6 a.m. on the morning of the 20th July. I arrived at the signal cabin about 9.54 p.m., and I took over charge of that box from signalman Vitty. He told me that all the trains that were due had arrived. At 9.59 p.m., before Vitty had left the box, Geneva offered us the 8.55 p.m. up train. I asked him what train it was, and he said "the ordinary train." He did not tell me anything about any train coming from Darlington Station. When Vitty handed over the box to me, all the levers were in their normal position, except the two release levers, Nos. 19 and 26. I did not at that time touch these levers. When I received the "Is line clear" signal from Geneva Junction, I at once forwarded it to the South cabin. South cabin at once accepted the train. I, however, waited until the South cabin had released my No. 11 points. As soon as my No. 11 points were released I at once set the road for the up Saltburn train, that is, Nos. 15, 12, 11, 10, 7, and 4 signal levers. As soon as I found that I could pull No. 11 lever, I at once accepted the train from Geneva Junction. All throughout No. 16 lever was in its normal position. I found I had no difficulty whatever in pulling over No. 15 lever. Nothing occurred to give me any idea that there was any vehicle standing on these points. I never pulled my distant signal at all. About 10.3 p.m. or 10.4 p.m. I received the "Train entering Section" signal from Geneva, and I forwarded it on to the South cabin. I saw the up Saltburn train approaching my cabin. I estimate the speed at between 8 and 10 miles per hour. It passed my box at about the same speed. Whilst the train was passing my box it came to a sudden stand, and that was my first intimation of anything having gone wrong. I then ascertained that the train had run into another engine. I did not know that there were any vehicles at all on my side of the South cabin. It has been customary to shunt trains into the section between South cabin and Polam cabin without warning Polam cabin, unless it was necessary for these trains to pass my home signal. This practice is contrary to block working, but it is only done in shunting operations. It has been the custom to do this ever since I came into the cabin. Before I accepted the train I looked up in the direction of Darlington Station, but did not see any lights or anything whatsoever on the line. The empty train had not been offered to me at all by South cabin. The collision occurred about 10.5 p.m. There is in Polam cabin, lever No. 19, which releases the up main line signals in the South cabin. When I am on duty in the cabin that lever generally stands over, and in that position is back-locked by the South cabin. We cannot use it without their permission. There is no difficulty in asking them for the permission, and if we want it we ask for it, it usually stands "over." When this lever is pulled over it deprives Polam cabin of all control over the South cabin up main line signals. I do not myself think it is of any use giving Polam cabin command over South cabin. My reason for allowing this release lever to always remain pulled over is that I did not see there was any use in it, or not much use anyhow. I had on several occasions seen engines, when carrying out shunting operations, run past my home signals when at danger. I have never reported their doing so, because I did not think it was necessary. I do not consider when a man draws past a signal it is the same thing as a man running past a signal. The facing points leading from the up main to the down branch are worked from separate levers to that which works the locking bar.

### *Conclusion.*

From the above evidence it will be seen that this collision was due to the fact of the up passenger train from Saltburn having been allowed to run through Polam Junction whilst that junction was, unknown to the signalman in the Polam Junction signal box, fouled by an engine which was engaged in shunting some empty passenger vehicles. The circumstances under which this empty passenger train came to be in this position without the knowledge of the signalman in the box controlling the junction are as follows :—

Between 9 and 10 p.m. on that night two passenger trains had arrived on the up loop station line at Darlington from the north, and the vehicles of these two trains had been put together to form a train which was to start southwards from No. 2 bay platform line.

These vehicles were first put together and shunted into the back line, where one waggon had to be dropped, and they were then to be shunted from that line on to No. 2 bay platform line, an operation which is carried out nightly with the vehicles of these two trains.

Owing to the fact that the connection between the up loop station line and the No. 2 bay platform line is situated only 85 yards north of the South signal box, and that the train was over 600 feet in length, it was necessary in carrying out this operation for the front of the train to run considerably past the South signal box on to the up main line towards the Polam signal box, or in other words to enter the section between these two boxes.

There is no exemption from block working over this section, and before therefore this shunting operation was carried out the signalman in the South signal box should have offered the train to the signalman in the Polam signal box, and it should have been duly accepted by the latter. The signalman in the Polam signal box should then have pulled over his release lever enabling the signalman in the South box to lower his up platform line starting signal which would give the driver permission to run along the up main line as far as the Polam Junction up home signal, situated 105 yards north of that box.

Had the above described procedure been carried out the signalman in the Polam signal box would have known that the empty passenger train had entered the section, but, as a matter of fact, the train was never offered to Polam signal box at all, and, owing to the release lever in the latter box being at the time over, the signalman in the South signal box was able to lower his up platform line starting signal without any reference to the Polam signal box. This was what actually occurred, and the signal was consequently lowered for the train to enter the section without the signalman in the Polam signal box knowing anything about it.

When the up platform line starting signal was lowered by the signalman in the South signal box, driver Allen, who was in charge of the engine of the empty passenger train, took his train forward bringing his engine to a stand just behind the Polam Junction up home signal, which was as far as he had permission to go. In this position, however, the train, owing to its having three carriages more than usual on it, was not far enough forward to clear the points through which it had to be backed on to the bay platform line, and shunter Phillips, who was superintending the operation, gave Allen a lamp signal to pull a little forward. Allen states that he was perfectly aware that the Polam Junction home signal was against him, and that he should not run past it, but he did so, thereby bringing his engine into a position where it was fouling the junction between the main lines and the branch lines from Saltburn. Allen was just about to back his train when his engine was run into by the up passenger train from Saltburn, which the signalman in the Polam signal box had accepted in ignorance that there was any train in the section between the South signal box and his own box. As regards the up passenger train it should be stated that all the block rules, including those relating to the section between Polam Junction and the South box, were strictly adhered to.

Both the driver and fireman of the empty train were at the time of the collision looking back for instructions from the shunter, so they did not see the up train approaching; the driver of the latter states that he did see the light of the engine in front of him, but that owing to the curve round which he was running he had no idea that it was fouling his line, and he thought that it was the light of an engine standing on another line. His view was undoubtedly a bad one, and I do not think that he can be held responsible for the collision; he appears to have had his train well under control or the accident would have been a more serious one.

The primary cause of this accident I consider to be the neglect to observe block working regulations between the two boxes; which resulted in the train entering the



section without the knowledge of the signalman in the Polam box ; not only were these regulations neglected on this occasion, but all witnesses concur in stating that they are habitually disregarded when shunting operations are carried out between these two boxes.

Further, in spite of this disregard of block working rules the signalman in the Polam signal box would not have been left in ignorance of the presence of the train in his section if he had retained in his hands the control over the South cabin starting signals. But it appears from the evidence of all four signalmen that it is customary to keep the release lever in the Polam signal box normally pulled over, or, in other words, it is customary for that box to entirely abandon the control over the South signal box up starting signals which has been specially given to it.

The habitual disregard over this section of block working in connection with shunting operations, and the neglect to make use of the safety precautions provided are points which call for the Company's earnest attention.

Driver Allen is of course much to blame for running past his signal at danger, and the statement made both by him and other witnesses that this is not an unusual occurrence in shunting operations at Darlington should be inquired into by the Company.

Signalmen John Vitty and Nottingham cannot be entirely absolved from blame for not knowing that the engine of the empty passenger train was standing at their home signal. It was standing in good view of the box, about 75 yards from it, and its lights were burning. The collision occurred just as signalman Vitty was leaving the box, so the engine must have been at or near the home signal for some minutes while the men were in the box together. Signalman Nottingham, who had just taken over duty in the box and who actually accepted the Saltburn train, should certainly not have done so without first looking at the junction ; had he done so he must have seen the light of the engine standing at it ; it is difficult also to understand how these men can both have failed to hear the noise of the engine and train stopping and starting again so close to their box. These men must therefore, in my opinion, be held partly responsible for the collision.

I think that it is worthy the consideration of the Company whether something cannot be done to simplify the signalling arrangements on the south side of Darlington Station. The short block section between the South box and the Polam Junction box must cause inconvenience when shunting operations are being carried out, and it might be found practicable to work the points and signals both at the south end of the station and at Polam Junction from one box, thus doing away with this short block section altogether.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
Lt.-Col., R.E.,

#### APPENDIX.

##### *Damage to Empty Passenger Train.*

Engine No. 135.—Fence rail badly broken ; right buffer damaged badly ; draw bar broken and forced through steam chest cover ; steam chest lubricator broken ; right expansion link broken ; right backway eccentric rod badly damaged ; Westinghouse pipe damaged tender end ; tank side damaged and holed.

Locker composite No. 169.—One buffer boss broken.

Third-class carriage No. 1179.—Centre bar hook broken and one side chain hook opened.

##### *Damage to Up Passenger Train.*

Engine No. 853.—Fence rail badly broken ; right buffer badly damaged ; draw bar broken ; steam chest cover broken ; right foreway eccentric rod bent ; screw coupling damaged ; Westinghouse pipe on front end of engine damaged.

Ordinary third (4-wheeled) No. 743.—Two buffer bosses and one quarter light broken.

Ordinary third (4-wheeled) No. 1034.—One buffer boss and step iron broken.

Bogie brake third (8-wheeled) No. 2722.—Lock buffered with following vehicle and two buffer springs damaged.

Bogie composite No. 2756.—End stove in and buffer beam splintered and gas pipe severed.

Bogie composite No. 2734.—Rear buffer beam splintered.

Bogie brake third No. 2721.—Buffer beam splintered.

Printed copies of the above Report were sent to the Company on the 18th September.

## NORTH EASTERN RAILWAY.

Board of Trade, Railway Department,  
8, Richmond Terrace, Whitehall, London, S.W.  
September 12th, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 19th August, the result of my inquiry into the circumstances under which a collision occurred, at about 1.30 p.m. on the 7th August, near Grosmont Station, on the North Eastern Railway, between a passenger train and some goods waggons attached to a brake van.

In this case, as a down excursion train from Leeds to Whitby, consisting of an engine, tender, and 12 vehicles, was running through Grosmont on the down main line, it came into collision with three waggons and a brake van, which had been detached from the 11.10 a.m. up goods train from Whitby to York, and had been shunted on to that line.

Fortunately the driver of the excursion train saw the waggons standing on the line in time to reduce his speed, so the results were not as serious as they would otherwise have been. The driver and fireman of the excursion train were both slightly injured, but only one passenger has complained of personal injuries sustained.

The engine of the excursion train was damaged, but none of the vehicles of this train were derailed, and the only damage to them was the breakage of one coupling.

The two front waggons of those left standing on the line were damaged, the front one severely so, and one of them was derailed.

The engine of the excursion train was a four-wheels-coupled bogie passenger tender engine, fitted with the Westinghouse automatic brake, working blocks on the four coupled wheels and on the six wheels of the tender, and with a hand brake working the blocks on the tender wheels.

The train consisted of the following vehicles attached to the engine in the order given :—

						Wheels.
One third-class brake van	...	...	...	...	...	4
Ten third-class carriages	...	...	...	...	...	4
One third-class brake van	...	...	...	...	...	4

The train was fitted throughout with the Westinghouse automatic brake working blocks on all the wheels of it. The brakes are reported as having been in good order.

The damage to rolling stock is given in the appendix ; that to permanent way consisted in the breakage of four chairs.

*Description.*

Grosmont Station, near which this accident occurred, is a station on the double line branch of the North Eastern Railway between Pickering and Whitby. The up and down main lines run through the station in a direction which is approximately north and south, the down line, with which this accident is mainly concerned, being on the west side. Just to the north of the station is a double junction between these main lines and the single line branch from Battersby, which approaches Grosmont from the south-west.

The signal box is on the down side of the main line, just to the north of the north end of the down platform. The next block signal boxes to it are the Deviation box to the south, distant 540 yards from it, and Sleights to the north, distant about two miles.

The gradient for a down train approaching Grosmont from the Deviation box is a falling one of 1 in 131 the whole way, and between the Deviation box and Grosmont Station there is a tunnel about 200 yards in length.

About 80 yards to the north of the signal box is a through road, with a trailing connection on the up main line, leading from that line to some sidings on the down side of the line, and slips are provided to form a cross-over road between the up and down main lines.

Between this cross-over road and the signal box is situated the double junction referred to above between the main lines and the single line branch from Battersby.



The down main line is provided with a distant signal near the Deviation box, two home signals—one situated at the south end of the tunnel and one at the south end of the station, a starting signal opposite the signal box, and an advanced starter 250 yards ahead of the box.

The view of a driver approaching Grosmont Station on the down main line is restricted by the tunnel, but on reaching the station he has a clear view of the line in front of him.

### *Evidence.*

*George Arber*, driver, states: I have been in the service of the Company 34 years, during 24 of which I have been a driver. I came on duty at 3.10 a.m. on the 7th of August to work till 3.0 p.m. I came off duty on the 6th of August at 1.30 p.m. I was in charge of the engine of the 11.10 a.m. goods train from Whitby to York. My engine was a six-wheels-coupled tender engine fitted with a hand brake, working blocks on the engine wheels and the tender wheels. We left Whitby at 12.30 p.m., one hour and twenty minutes late, and arrived at Grosmont at 12.50 p.m. There were about 22 waggons on my train, but I am not sure of the exact number. When we arrived at Grosmont the home signal was off for me, and I ran past it, but was brought to a stand just opposite the signal cabin by a hand signal from the shunter. The York portion of my train consisted of the rear three waggons and the van. The shunter uncoupled these from the rest of the train, and ordered me to shunt them back on to the down main line. I did so. The shunter then told me to shunt the remainder of my train into the siding, and I did so, and I was in the siding with the front portion of my train when the collision occurred. I did not see the excursion train approaching, nor did I see the collision occur, as I was standing behind the waggons which were on the main line. The guard remained on the main line with the brake van.

*W. Johnson*, guard, says: I have been about 22 years in the service of the Company, and have been a guard for about 12 years. I came on duty on the 7th of August at 4.25 a.m. to work till 3.0 p.m. I came off duty the previous day at 7.0 p.m. I was the guard of the 11.10 a.m. goods train from Whitby to York. My train consisted of about 22 waggons and a brake van. We left Whitby at 12.30 p.m. and arrived at Grosmont at 12.54 p.m. We came to a stand at Grosmont with my brake van just clear of the points of the cross-over road, and the shunter released the three rear waggons and my brake van from the rest of the train, and this rear portion of the train was shunted back on to the down road. I stopped it by means of my brake. This rear portion of the train was brought to a stand just clear of the shunt leading into the siding. The remainder of the train was put into the sidings. I went back to my van and was waiting there for the excursion to pass. I understood that we were shunted on to the down road to clear the line for an up excursion train and for an engineers' special. The up excursion train passed, and I was waiting for the engineers' special to pass and was looking towards Whitby to see its approach. I heard a noise and looked towards the station and saw a train approaching on the down line. I at once jumped out of my van. The brakes of my van were applied at the time. Almost simultaneously with my jumping out the collision occurred. He would be past the signal box when I first saw him. There was no time for me to take any steps towards stopping the excursion train. I estimate the speed of the

excursion train at the time of the collision at from 15 to 20 miles an hour. It seemed to be stopping at the time, and I think he had his brakes applied. The leading waggon on my train was damaged, and had one pair of wheels off the line. My van was fitted with a hand brake working blocks on the four wheels. I had no conversation with the driver of the excursion train subsequent to the collision.

*Thomas Elwick*, passenger porter, states: I have been in the service of the Company 43 years, and am in the habit of carrying out the shunting duties at this station in conjunction with the other porter. I remember the 11.10 a.m. goods train from Whitby arriving at Grosmont near on one o'clock on the 7th of August. The train came to a stand with the engine just about opposite the cabin. The signalman told me to uncouple the rear portion of the train, and to shunt it on to the down main line, and to put the front portion of the train in the sidings. The signalman told me he had been offered the up excursion train. I carried out his instructions. The up excursion train arrived, and I then went away to the sidings at the other end of the station, and I did not see the collision occur.

*Frederick Taylor*, driver, states: I have been 26 years in the service of the Company, and have been a driver for 10 years. On the 7th of August I came on duty at 8.45 a.m. to work till 10.50 p.m., with four hours off at Whitby. I came off duty on the previous day at 7.15 p.m. I was in charge of the engine of the first portion of the excursion train from Leeds to Whitby. My engine was a four-wheels-coupled bogie passenger tender engine, fitted with the Westinghouse brake, working blocks on the four coupled wheels, and with a hand brake working blocks on the tender wheels. My brakes were in good order. I remember our approaching Grosmont distant signal; it was off for me. The two home signals were also off for me. In my opinion we passed through the tunnel at a rate of from 15 to 20 miles an hour, and I did not increase my speed again. On emerging from the tunnel I saw the home signal, and it was off for me. On passing the home signal I did not notice any obstruction on the line. I was looking out, and I saw the station master on the platform. He held up two fingers to me, meaning to ask whether the train was running in two portions, and I shouted out "Yes! it is in two portions." Just subsequent to this, and just as we were passing the platform end, my mate called my attention to some waggons on the main line in front of us. My speed was still about from 15 to 20 miles an hour. I put the brake hard on, reversed my engine, and gave it steam, and my mate opened the steam sanders. The speed of my train was reduced considerably, but I cannot say what our speed was at the actual time of the collision. The starting signal opposite the signal cabin was also off for me, and when we came to a standstill I

noticed that the advanced starter was off. My engine was slightly damaged. I was a bit shaken, and have had to knock off work since.

*Henry Dennis*, fireman, states: I have been nine years in the service of the Company, and I have been a fireman for about four-and-a-half years. I was working the same hours as driver Taylor on the 7th of August, and was on the engine of the excursion train from Leeds to Whitby with him. I estimate our speed on passing through Grosmont tunnel at from 15 to 20 miles an hour, and I do not think the driver increased this speed up to the time of the collision. I noticed the distant, home and starting signals at Grosmont, and they were all off for us. Just as we were passing through the platform I noticed some waggons on the line in front of us. I said to the driver "Stop! there's some waggons in front." My driver applied the brakes, reversed the engine, and applied steam, and I applied the sanders. Steam was not turned on at the time we were running through the tunnel. The speed of the train was decreased, and I estimate its speed at the time of the collision at from six to seven miles an hour. Nobody in the station tried to stop us, or gave us any warning of there being any obstruction on our road. I was shaken by the collision, and my side was hurt, but I have not been off duty. After the collision had occurred I looked up and saw the advance starting signal; it was off for us.

*Arthur Sawyer*, guard, states: I have been about 27 years in the service of the Company, during 18 of which I have been a guard. I came on duty on the 7th of August at 10.10 a.m. to work to 10.50 p.m. I came off duty the previous night at 10.0 p.m. I was guard of the excursion train from Leeds to Whitby. My train consisted of an engine and tender, and the following carriages attached to the engine in the order given:—

	Wheels.
One brake third ... ..	4
Ten third-class carriages, all	4
One third brake van ... ..	4

The train was fitted throughout with the Westinghouse automatic brake, working blocks on all wheels, and the brake vans were each fitted with hand brake. I was riding in the rear brake van. My brakes were in good order. I estimate our speed on passing through Grosmont tunnel at from 15 to 20 miles an hour, but not above 20. Before my van had got clear of Grosmont Station I was thrown off my feet by the driver applying the automatic brake very suddenly. Before I pulled myself together I felt the shock of the collision. I then got out of my van to see what had happened. I received no complaints at the time from any of the passengers. The drawbar of one carriage in the middle of the train was broken, but none of my train was derailed. I noticed the signals while we were running through Grosmont, and they were all off for me. I did not notice the advance starting signal. The brakes appeared to act well and lessened the speed of the train. I cannot say what the speed was at the time of the collision.

*W. Bird*, signalman, states: I have been in the service of the Company about 26 years, during the whole of which time I have been a signalman. I am employed at present in Grosmont signal-box, and have been employed there for 22 or 23 years. I came on duty on the 7th of August at 5 a.m. to work to 2 p.m. I came off duty about 4 p.m. the previous day. I remember the

goods train from Whitby to York arriving at Grosmont on that day at 12.52 p.m. I brought it to a stand with the brake-van just clear of the through shunt. I saw porter Elwick opposite my box, and I told him to go down and loose the brake-van and waggons for the south from the rest of the train. I then pulled over No. 8 points, and I gave the driver a hand-signal to back them across the cross-over road. He did so. The rear portion of the train was brought to rest on the down main line, just clear of the through shunt leading to the independent siding. I left this rear portion of the train on the down main line because there was not room in either of the sidings for the whole of the train. I then opened No. 7 points and waved the driver back with the rest of his train into the outer siding. I had shunted this goods train because I had received the "Shunt" signal from the Sleights Station. This shunting operation was finished at 12.59 p.m. At 12.59 p.m. I was offered a light engine on the down line by the Deviation box. I accepted this at 1.8 p.m. I was unable to accept this light engine sooner, as I had an up excursion train running from my up main line on to the branch line. I did, however, accept this light engine at 1.8 p.m. with the "Line clear" signal. I admit that I should have accepted this light engine with the "Section clear, but station blocked" signal. I am unable to explain why I did not accept it under the latter signal. As soon, however, as I accepted this light engine it was cancelled by the Deviation box. As soon as the light engine was cancelled the Deviation box offered me the excursion train from Leeds to Whitby. This was also at 1.8 p.m. I accepted the excursion train also under the "Line clear" signal. I ought not to have accepted this train at all, and I am unable to explain why I did so. I had so many trains passing at this time that it escaped my recollection that there were trucks standing on the down main line. I am aware of the rule that when shunting is carried out inside the home signal the "Blocking back" signal should be given to the signal-box in rear. This "Blocking back" signal should have been sent by me when I shunted the three waggons and the brake-van on to the down main line. The only explanation I can give of my not having sent it is that it has not been customary for me to do so. It was 1.8 p.m. when I accepted the excursion train from Leeds. I at once offered it to Sleights, and it was at once accepted by that box. I then pulled off all my signals for it, including my advanced starter. I received "Train entering section" from the Deviation box at 1.11 p.m., and it ran past my box at 1.12 p.m. I can give no estimate of the speed of the excursion train when passing my box. Even when the train passed my box it did not occur to me that there was any obstruction on the line. The first I knew of there being anything wrong was seeing the excursion train stop. I thought it had intended to stop at the platform and had overshot the platform, but I subsequently heard someone shout out that it had run into some waggons on the line. I then remembered that I had left some waggons standing on the line.

*John William Dixon* states: I am station-master at Grosmont, where I have been about two years. I remember the accident occurring near my station on the 7th of August. At the time it occurred I was standing at the north end of the down platform. I remember seeing the 11.10 a.m. goods train from Whitby arrive at Grosmont, and I was somewhere near the signal cabin when it arrived. I remember seeing that the brake-van and three waggons were shunted

from the up line on to the down main, and the rest of the train was put into one of the sidings on the down side of the line. I did not notice anything further being done with the brake-van and the three waggons which were left on the down line. At the time the excursion train from Leeds was approaching my station I was walking over from the north platform, and I reached the main platform just at the same time that the engine reached the station. As the engine passed through my station I held up two fingers of my hand to the driver, meaning to ask him whether his train was running in duplicate, and he gave

me to understand that it was running in duplicate. Since seeing the waggons shunted on to the down main line I had had several things to attend to, including the excursion train on the single line branch, and these waggons had gone out of my mind altogether. It did not occur to me to see that the waggons were removed from the main line; I trusted to the signalman seeing to it. I usually go away to dinner at 12.35 p.m., but on this day, on account of the excursion train and several things which I had to do, I was remaining on until 2 p.m. There was more traffic going on at my station on this day than is usual.

### *Conclusion.*

This collision, which fortunately had not more serious results, was due to the fact of signalman Bird's having accepted the excursion train from the Deviation box on the down main line, and having lowered all his signals for it, forgetting that there were some vehicles at the time standing on that line.

An up goods train, consisting of 23 vehicles, had arrived at Grosmont about 12.52 p.m. on the up main line from Sleights. Previous to its arrival Bird had received the "Shunt" signal from the Sleights signal box, this signal having been sent on account of there being an up excursion train and an up engineers' special following it. On the arrival of the up goods train at Grosmont Bird accordingly arranged for the engine and the 20 front vehicles of the train, which were for the north, to be shunted from the up line into one of the sidings on the down side of the line, whilst the three rear waggons and the brake van, which were for York, were shunted across the cross-over road from the up to the down line, and were left standing on that line. In this position they were about 180 yards from the signal box, and in good view of it. Bird states that he shunted the last-named vehicles on to the down main line on account of there not being room for them in the sidings. These shunting operations were completed at 12.59 p.m., and, according to the Company's rules, Bird should, on obstructing the down main line, have at once sent the blocking back signal to the Deviation box; this, Bird admits, he omitted to do.

At the same time, viz., 12.59 p.m., Bird was offered a light engine by the signalman in the Deviation box; he was unable at once to accept it, as, apart from the fact that there were waggons standing on the down main line, he had accepted the up excursion train from Sleights, which had to run on to the branch line, and would thereby foul the down main line. But at 1.8 p.m., when the up excursion train had passed, Bird accepted the light engine with the "Line clear" signal. Bird admits that, according to the Company's rules, he should not have accepted the light engine with that signal, as the line was obstructed inside the home signal, but that he should have made use of the "Section clear, but station blocked" signal.

As soon, however, as Bird sent the "Line clear" signal for the light engine the signalman in the Deviation box at once cancelled it, and offered him instead the down excursion train from Leeds. This train also Bird forthwith accepted with the "Line clear" signal, he having by that time entirely forgotten that he had had any vehicles shunted on to the down line. He at once offered the train to the Sleights signal box, and, on its being accepted, he forthwith lowered all his signals for it to run through Grosmont.

The down excursion train is stated to have passed through Grosmont Station at a speed of between 15 and 20 miles an hour with steam turned off. The driver's attention when passing through the station appears to have been occupied in replying to hand signals made by the station-master enquiring whether the train was running double, but just as the engine was passing the platform the fireman saw the vehicles standing on the line ahead, and promptly called the driver's attention to them. The brakes were at once applied, the engine reversed, and steam turned on, but the train was not brought to a standstill in time to prevent the collision, though the speed at the time must have been small, or the damage would have been greater.

Signalman Bird, in carrying out his duties connected with these trains, clearly omitted to comply with three of the Company's rules; he did not send the blocking back signal when he obstructed the main line by shunting waggons on to it; he accepted the light engine, when the line was obstructed, with the line clear signal instead of with the "Section

clear but station blocked " signal ; and he accepted the down excursion train under the same circumstances when he was not justified in accepting it at all. He admits that he was fully acquainted with all these rules which he transgressed. The only explanation which he can give for his not having sent the blocking back signal is that it has not been customary for him to do so, and his explanation as to his acceptance of the light engine and excursion train is that he had altogether forgotten that there were any vehicles standing on the down line.

Considering that signalman Bird had himself made all the arrangements for the shunting of the vehicles on to the down main line, and that they were standing in clear view from his box when he accepted the excursion train, he must be held responsible for this accident. He had been on duty  $8\frac{1}{2}$  hours at the time of the occurrence.

No blame appears to attach to any other servant of the Company.

The practice of shunting vehicles on to a running line and leaving them standing there, as was done on this occasion, has frequently in the past led to accidents, and it is one which Companies should endeavour, as far as possible, to avoid.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
Lieut.-Col., R.E.

#### APPENDIX.

##### DAMAGE TO ROLLING STOCK.

###### *Excursion Train.*

Engine No. 112.—Front buffer-beam slightly damaged.

One coupling in train broken.

###### *Waggons of Goods Train.*

Waggon No. 7,517.—End-rail, horn-plates, side-springs, axle-boxes, draw-bar and buffers broken; one pair of wheels displaced.

Oil tank No. 152.—Buffer-shoe broken and buffer displaced.

Printed copies of the above Report were sent to the Company on the 11th October.

## APPENDIX B.

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### REPORTS OF THE ASSISTANT INSPECTING OFFICERS OF RAILWAYS ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

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#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

4th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of October 12th I have held an inquiry into the circumstances attending the accident which occurred at about 9.30 p.m., on September 26th, at Bellshill Colliery, whereby Edmond Davidson, a brakesman in the service of the Caledonian Railway Company, was injured.

The Bellshill Colliery sidings, in which the loaded waggons are placed, are connected with the main line of the Caledonian Railway at Bellshill Station signal-box by means of a single line about half a mile in length, which is controlled by a staff. The gradient rises from both ends to a point about midway between them.

Davidson was in charge of a special train consisting of 25 loaded coal waggons and one brake van from Bellshill Colliery to Grangemouth. In accordance with the practice usually adopted on the Colliery line in the case of trains going in this direction (*i.e.* east from Bellshill) the brake van was attached next to the engine, and Davidson rode on the buffers between the last waggons. Shortly after the train started he overbalanced and fell to the ground, his right leg being run over by the last waggon.

The Company do not appear to have issued any written or printed instructions as to the method of working these trains on the Colliery line, but there is no doubt that the method adopted by Davidson is sanctioned by the officials responsible for the working. The practice of riding on the buffers of waggons is a dangerous one, and I am of opinion that the Company should take steps to prevent the necessity for its being adopted.

The Bellshill Colliery sidings are the property of the Summerlee and Mossend Iron and Steel Company, Limited, and are not lighted in any way, although shunting operations are frequently carried on in them after dark, and I consider that the railway company ought to press the colliery owners to provide sufficient light to enable the necessary shunting to be carried out with safety to the men employed therein.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### CAMBRIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

2nd October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 12th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 16th August to labourer William Lewis, at Pwllheli, on the Cambrian Railway.

In this case Lewis was assisting carriage fitter John Martin to repair the brake work of a coach standing in the carriage shed, and for this purpose the men were at work

beneath the carriage. While they were in this position Martin, who was in charge of the work, was warned by shunter Williams that an engine was going to back on to the coaches to pick up a brake van. Martin acknowledged this warning, but to complete the work both men remained beneath the coach for some few minutes afterwards, with the result that they were caught in this position when the carriages were moved, and Lewis, in attempting to pass between the wheels, was run over and killed.

It is to be regretted that Martin failed to immediately comply with the warning received from Williams, as I am satisfied that there was ample time for both men to have got clear before the coaches were moved.

Martin is also to blame for neglecting to place red flags on the leading vehicle when working in such a dangerous position. He assures me it is his general practice to take this precaution, but in this instance he omitted to do so, for the reason that he had left the flags behind. I find the Company's instructions in connection with the protection of men when employed at such work have been rather vague in the past, but since the accident stringent regulations have been issued to the staff which, if carefully enforced, will no doubt prove advantageous.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### CARDIFF RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

19th October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of October 2nd I have held an inquiry into the circumstances attending the accident which occurred on September 11th, at Collingdon Road, on the Cardiff Railway, whereby assistant brakesman William Evans was injured.

About 2.15 p.m., Evans was assisting to form a goods train in the "Warehouse" Road at Collingdon Road, on the west side of the West Dock. He was working under the instructions of the guard, who had told him to couple up those waggons which had already been marshalled. In order to release the brake on one of the waggons he attempted to pass between two waggons which were standing slightly apart. The waggons, however, were just then closed up by the engine, with the result that Evans was caught between the buffers and injured. I was unable to take the evidence of the injured lad, but after the accident he admitted to the guard that he was alone to blame, and the accident must be attributed to his own want of caution.

The fitting of "eitherside" brakes, as provided for in the "Prevention of Accidents Act, 1900," will no doubt prevent many accidents of a similar nature in the future.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### CHESHIRE LINES.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

19th August, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of August 2nd I have held an inquiry into the circumstances attending the accident which occurred on July 18th, at Northgate Station, Chester, on the Cheshire lines, whereby fireman Henry Fowler was injured.

Fowler, who is in the service of the Great Central Railway Company, was fireman on a six-wheels-coupled side tank engine, working with a goods train which was shunting in the yard. About 12.15 a.m., part of the train was being set back slowly, and Fowler was

standing inside the hand rails on the left hand side of the engine looking through the spectacle plate for hand signals from the shunter. From some unaccountable cause he slipped and fell off the footplate sideways, through the hand rails on to the ballast, breaking his collar-bone. The mishap must be regarded as a pure accident.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

11th October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of October 2nd I have held an inquiry into the circumstances attending the accident which occurred on September 18th, at the Aldwarke Main Colliery Sidings, at Parkgate, on the Great Central Railway, whereby porter-guard Fred Goodhand was injured.

About 7.5 a.m., it was necessary to attach six waggons of coke to a down train. The waggons were standing on the "slip-loop" road, which is the property of the Colliery Company, and which is not sufficiently well laid to carry the Railway Company's engines. The waggons were therefore towed into the sidings by means of a tow-rope attached to the train engine, which travelled on a parallel line. Goodhand was holding the hook of the tow-rope in the side loop of one of the waggons, and as the rope became taut his right thumb was crushed between the hook and the waggon. Goodhand had never previously assisted in using a tow-rope, and I attribute the accident mainly to his want of experience.

The tow-rope is only used to draw out waggons which have been left in the "slip-loop" road by the Colliery Company's engines. As a rule, the waggons are taken into the sidings by the Colliery engines, and it is only when the sidings are full that they are left on the "slip-loop" road. The entire abolition of tow-roping at these sidings can be accomplished by any one of the following methods:—

- (1) Clearing the sidings more frequently.
- (2) Providing more siding accommodation.
- (3) Declining to accept waggons from the colliery unless they are placed in the sidings.
- (4) Relaying the "slip-loop" road, so that train engines can use it.

As the use of a tow-rope is always attended with considerable risk, I am of opinion that the Company should take steps to render such a practice unnecessary.

The tow-rope used at the sidings is made of steel wire rope, and on the date of my inquiry one of the metal "eyes" (which protect the rope from the friction caused by the rings attached to the hooks) was out of place. As I was given to understand that the rope had been in this condition for more than a fortnight, I suggest that the Company would do well to issue instructions which would ensure the regular inspection of these ropes by competent persons.

The Company's attention should also be drawn to the fact that these sidings are not lighted in any way, although shunting operations are frequently carried on in them after dark.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

19th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of October 16th I have held an inquiry into the circumstances

attending the accident which occurred on September 19th, at Sheffield, on the Great Central Railway, whereby driver David Mason was injured.

Mason was in charge of a tank engine which was standing on the turntable road about 7.35 p.m. The signal which governs the lead from the turntable road to the up goods line was pulled off about 7.55 p.m., and, in accordance with his instructions, Mason went ahead. Just as he reached the points his engine came into collision with another light engine standing on the up goods line. Both engines were slightly damaged, and Mason was thrown against the reversing screw of his engine and sustained a broken rib.

The engine which was standing on the goods line had a red light on the left-hand buffer of the tender, and I am of opinion that Mason's fireman, James Brewtnall, would have seen this had he been keeping a sharp look-out. The accident, however, was primarily due to the fact that Isaac Wragg, the signalman in No. 6 box, permitted the tank engine to leave the turntable road while the tender engine was standing on the goods line in front of the home signal for No. 7 box, which was at danger.

Wragg states that signalman William Willis, in No. 7 box, accepted the tender engine, and gave the "Out of section" signal for it about 7.45 p.m. Willis, however, denies that the engine was offered to him till after the collision, and his statement is supported by the evidence of his train-register boy, Joseph Keyworth, and the entries in his block book. The block book in No. 6 box throws no light on the point in dispute, as entries are not made in it for trains travelling on the goods lines. Wragg bears an excellent character, but the weight of evidence is certainly against him, and the responsibility for the accident must rest with him.

It was stated in evidence that the train-register boy in No. 7 box, Joseph Keyworth, has been in the habit of attending to the train instruments instead of confining his attention to the entries in the block book. Signalman Willis is to blame for permitting this practice, and it is to be hoped that the Company will take steps to effectually prevent a repetition thereof.

The points leading from the turntable road to the up goods line are only about 100 feet from the home signal for No. 7 box, and, in order to permit other engines to go to and from the turntable, drivers are occasionally allowed to draw past this signal when it is at danger. The practice of permitting drivers to pass signals at danger at any time is objectionable, and I am of opinion that the Company should take steps to abolish the necessity for it in this case.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
12th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of October 16th I have held an inquiry into the circumstances attending the accident which occurred on September 20th, at Mexborough, on the Great Central Railway, whereby Ben Dyson, a cleaner in the service of the Lancashire and Yorkshire Railway Company, was injured.

Dyson was acting as fireman on a six-wheels-coupled goods engine, which was working on the 1.0 p.m. "locomotive coal" train from Roundwood to Mirfield. The train stopped at Mexborough Station for about ten minutes to take water, and left at 6.15 p.m. When approaching Mexborough West Junction, Dyson, without saying anything to his driver, left the footplate in order to light the head-lamp. When placing the lighted lamp in the socket he fell from the engine and was injured. The driver did not notice Dyson's absence till he heard something rattle on the right-hand side of the engine, and he at once brought the train to a stand. The train had been checked by signals at the Junction, and probably Dyson fell off when the driver opened the regulator after the signal had been pulled off. The train was booked to stop at Wath, about a mile further on, and the head-lamp should have been lighted there or at Mexborough while the engine was stationary.



I consider that Dyson must be held responsible for unnecessarily placing himself in such a dangerous position. I am afraid, however, that the lighting of head-lamps while engines are in motion is by no means an uncommon occurrence on the Lancashire and Yorkshire Railway. There should be no need for the adoption of such a dangerous practice, and I consider that the Company should issue and enforce instructions forbidding drivers and firemen to leave the footplates of engines in motion.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
24th September, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 4th, the result of my inquiry into the circumstances attending the accident which occurred on the 23rd August to labourer William Brown, at Downham, on the Great Eastern Railway.

In this case, as a trolley, conveying Brown with several other men, was running on the up main line towards Denver, when approaching the cross-over points trailing from the up to the down main lines, the switch was pulled over, with the result that the trolley left the road, and Brown, in falling, injured his back. Signaller Wright was advised prior to the accident that it was necessary to run two trolleys on the "up" line to Denver, and he saw them leave the platform, having a space of from 25 to 30 yards between them. A goods train arrived at the same time on the "down" line, and the engine with 14 trucks attached was uncoupled and proceeded forward clear of the cross-over road points, over which this portion of the train had to pass. As the signal cabin is placed on the far side of the down line, Wright's view of the trolley was temporarily obstructed by the waggons. He, however, saw the leading trolley, which he mistook for the second, clear of the cross-over point, and accordingly set the road, with the result stated above.

The mishap was due to signalman Wright mistaking the first trolley for the second. He should have assured himself that both trolleys were clear of the points and beyond the starting signal before throwing over the switch. Wright is also to blame for moving the points before receiving a signal from the guard that the waggons of the goods train were clear, thereby disregarding Rule 62.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
5th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 4th, the result of my inquiry into the circumstances attending the accident which occurred on the 16th September to assistant linemen A. Selway and J. Fish, at Ilford, on the Great Eastern Railway.

In this case, as Selway and Fish were repairing an electric fouling bar on the down local line at the entrance to the carriage sidings, they were knocked down by the engine of an empty carriage train leaving the sidings for Romford, and were run over, both men receiving severe injuries, which, in the case of Selway, subsequently proved fatal.

The work was of such a description that it was necessary for both men to be employed at the same time, and therefore it was impossible for either of them to keep a proper lookout. As they were working at a place where the traffic is heavy and in a dangerous position, they should have had a look-cut man for their protection.

The appended circular letter was issued to linemen in 1896, and I am advised that both Selway and Fish were aware of its requirements, but in this instance they did not apply for a flagman.

I consider, however, that head lineman Plaire, who was in charge of the work, and admits that such a precaution should have been taken, was remiss in failing to assure himself that the necessary look-out man had been appointed.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### FOULING BARS AND RAIL CONTACTS.

Great Eastern Railway, Telegraph Department,  
Liverpool Street Station,

May 15th, 1896.

TO LINEMEN,

In cases where the above are fixed in dangerous positions, and also where any length of time is likely to be occupied in attending to them, the persons attending to them must obtain a flagman for their protection whilst carrying out the work.

If by any chance it is found impossible to obtain a flagman from the Permanent Way Department the most suitable man from our Department must be made use of, but every effort must be made to obtain a flagman.

Please note, and see that all the men under you do the same.

(Signed) H. G. SACH,  
per E.A.K.

#### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

5th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 4th, the result of my inquiry into the circumstances attending the accident which occurred on the 17th September to W. Jenkinson, at Whitemoor goods shed, on the Great Eastern Railway.

In this case it was necessary to draw some waggons out of No. 2 road from the north end of the goods shed, but as a number of brakes had been pinned down, and the rails were greasy, the engine was unable to lift the load.

Jenkinson, who was employed as a goods checker, volunteered to release one of the brakes, and while he was standing on the levers for this purpose a train of waggons was brought into the shed from the south end on No. 2 road, and, coming against the standing waggons, moved them forward a few feet, with the result that Jenkinson was crushed between the waggon and the staging.

Shunter Blackwell was responsible for bringing the waggons into the shed, and he is to blame for failing to satisfy himself that the road was clear before signalling the driver to come back.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

29th August, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of July 29th I have held an inquiry into the circumstances attending the accident which occurred at Hunslet Goods Station, on the Great Northern Railway, on July 5th, whereby porter Charles Herring was injured.

Just before leaving duty at 8.30 p.m., Herring was engaged in moving six waggon inside the warehouse towards the warehouse door by means of a hydraulic capstan fixed between the warehouse wall and the line on which the waggons were. The capstan is started by the capstan-man placing his foot on a plunger which projects slightly above the cover plate, and the removal of the man's foot should cause a balance weight to close the pressure valve and stop the capstan working. Herring by some means got his legs entangled in the slack of the rope, and, owing to the balance weight not acting properly when he removed his foot, he was taken round with the capstan (which was revolving at about half its usual speed) and was severely injured. The shed foreman heard Herring shout and came to his assistance, but owing to Herring's position it was not possible to reach the valve, which is under the cover plate, and a man was sent to the engine house, which is about 300 yards away, to instruct the engine-man to stop the engine and release the pressure in the accumulator.

The injured man was unable to give evidence, and I cannot state exactly how he became entangled in the rope, but the accident must be mainly attributed to the failure of the operating mechanism of the capstan. About 18 months before the accident the plunger, which was on the side of the cover plate next to the rails, was considered to be too near the rails, and a new plunger was fitted nearer to the wall. The old plunger head was removed and the new plunger was connected with the old one by means of a cranked lever. The aperture in the cover plate, through which the old plunger head worked, was left open, and through this aperture some dirt appears to have found its way to the bracket which acted as a guide to the old plunger rod, preventing the rod from working freely. This aperture has been closed since the accident. Previous to the accident the capstan had been cleaned and inspected regularly.

These capstans occasionally fail in a similar way owing to the packing of the glands being defective, and I would suggest that the Company fit up an electric bell from the warehouse to the engine house in order that the engine may be stopped without delay when necessary. Owing to the somewhat small clearance between the capstan and the wall, it is advisable that every possible precaution should be taken.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR, 23rd October, 1901.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 13th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 4th August to James Haig, at Peterborough engine sheds, on the Great Northern Railway.

In this case, Haig was cleaning a part of the motion of an engine which was standing with others on No. 8 road in the locomotive steam shed, and for this purpose was working beneath the engine between the crank axle and the firebox. While he was in this position the engines were moved through several others being shunted against them, and Haig was crushed between the web of the crank and the firebox, sustaining injuries which subsequently proved fatal. The engines were shunted into the shed by driver Palmer on receiving a signal from fireman Thompson who was standing at the shed door about 120 feet distant, Thompson in turn having received a signal from shed setter Roe that all was clear.

Roe, who was acting as shed setter, failed to give warning to all men who were working on or near the road before giving permission for the engines to be moved inside the shed, as instructed by a regulation of which he was aware, and therefore he is to blame for this serious omission, which was indirectly the cause of the unfortunate accident.

I have, &c.  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT SOUTHERN AND WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

4th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 28th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 10th September to special guard Thomas O'Dwyer, at Limerick, on the Great Southern and Western Railway.

In this case, O'Dwyer had been sent into the goods yard by station master Shanahan to find out from the inspector or foreman what time a special train for Tuam would be ready to leave, and when walking towards the station between the arrival and departure lines, O'Dwyer either slipped on some narrow boxing about 12 inches wide which stands about four inches above the ballast covering some point-rods, or was attempting to cross the line, when he was struck by the engine of an incoming train and run over, sustaining injuries which subsequently proved fatal.

Two gas lamps are fixed to some buildings on either side of the lines, one within 7 yards, and the other about 15 yards distant from the place where the accident occurred. Both these lamps were lit, and from the evidence it appears that there was ample light at the time (9.55 p.m.).

As O'Dwyer had been on duty (so far as I could gather) from 5.40 a.m. until 6.45 p.m., and then after an interval of only two hours' rest had been called out again by station master Shanahan, who wished to know when he had booked "off" duty, it is possible O'Dwyer was not so alert as he might have been had he been allowed more rest; therefore the accident may have been partly due to this cause.

There was no necessity for Shanahan to send for O'Dwyer, as he might have obtained the information he required by other means, but as I find that there is practically no system for booking men "off" and "on" duty at this station, his action is not surprising.

I was unable to obtain from the books returns or statements which I called for or from the Company's representatives the actual time O'Dwyer worked on the day in question, or on any of the other days previous to the accident, therefore it appears necessary for the Company to make arrangements whereby the actual time of booking "on" and "off" duty by the staff will be accurately kept in future.

I also consider that the ballast should be brought up to the level of the boxing covering the point-rods between the arrival and departure lines, as at present the boxing forms a dangerous obstruction.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

18th September, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with your Order of August 10th, I have held an inquiry into the circumstances attending the accident which occurred at Fenny Compton Station, on the Great Western Railway, on August 1st, whereby porter George William Cherry was fatally injured.

About 9.25 a.m. Cherry was engaged in shunting operations with the 7.20 a.m. up goods train from Leamington to Banbury. The train engine, with five waggons attached in rear, was standing on the down main line, which runs approximately north to south. Parallel to this line, and on the west side of it, is the "mileage" siding, which is connected to the down main line by a slip road, which enters the siding at a point about 60 yards from the buffer stops at the north end. Four empty waggons were standing in the "mileage" siding south of the points leading to the down main line, and it was necessary to place these waggons at the north end of the siding against the buffer-stops. In order

to do this, Cherry placed one hook of the tow-rope in the front hole of the iron solebar of the second waggon, the hook at the other end of the tow-rope being placed on the draw-bar hook in front of the engine by the guard of the train. The waggons were thus drawn down the siding about as far as the points when the engine was stopped according to Cherry's instructions. While the waggons were running forward Cherry attempted to release the tow-rope hook from the waggon, but failed to do so, and the slack of the rope falling on to the ground caught against the guard rail at the point where the outer rail of the slip crosses the outer rail of the down main line. When the guard saw this, he attempted to release his end of the tow-rope from the engine, but failed to do so. The impetus of the waggons caused the rope to become taut, and it was severed by the sharp edge of the guard rail. The severed portion at the end attached to the waggons was about 9 feet 5 inches in length, and this end curled round Cherry, throwing him down. The waggons continued to run forward slowly, and two of the axle-boxes struck Cherry on the head, causing fatal injuries.

I consider that this unfortunate mishap must be regarded as a pure accident. I am inclined to think that Cherry, in his anxiety to release the hook from the waggon, did not realise the impending danger. No doubt if the guard had released his end of the rope promptly, the accident would have been avoided, but the whole occurrence took place in such a short space of time that I do not think any blame should be attached to him.

The use of a tow-rope is always accompanied with a certain amount of danger, and should be avoided wherever possible, but owing to the arrangement of the lines and sidings at Fenny Compton Station, which was constructed many years ago by the Oxford and Birmingham Company, it is not practicable to perform certain shunting operations in any other manner.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
18th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 18th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 11th September to engine driver William Iles, at Bristol Steam Sheds, on the Great Western Railway.

In this case, Iles was oiling part of the motion of an engine which was standing on No. 1 road, and while he was employed at this work several other engines were brought against the one at which Iles was engaged, and moved it forward, so that he was crushed between the web of the crank and the fire-box, with fatal results.

Immediately in front of the engine at which Iles was working were four other engines, with a space of a few feet between. The engines had been set in the positions they occupied by driver Haynes, with the assistance of fireman Chapman, who went back after the movement had been completed in order to apply the hand brakes, but Chapman seeing two other engines coming back on the same road and knowing that it was necessary to clear No. 2 points, did not apply the brakes or take any steps to stop the incoming engines, but allowed them to close up against the one which Iles was preparing. For this Chapman is to blame in failing to give warning. Fireman Burnett, who has since been discharged, shunted the two engines into No. 1 road without taking the precaution to see that all men were clear, thereby disobeying instructions of which he was aware, and for this he also is to blame.

Driver Higby, with whom Burnett was working, allowed his fireman to shunt the engines alone, and as it is a customary practice for two men to be with engines when shunting in a locomotive yard, Higby is to be blame for permitting Burnett to undertake the work by himself.

I consider that it is very necessary for two men to be with engines shunting in locomotive sidings and steam sheds, and as this is not specially ordered, although it may be a customary practice, I think that it would be advisable for the Company to issue definite

instructions to the effect that engines must not be shunted unless there are two men in attendance.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

## GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

18th October, 1901.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of October 2nd, I have held an inquiry into the circumstances attending the accident which occurred at Merthyr, on the Great Western Railway, on September 18th, whereby packer H. Jones was fatally injured.

Jones and another packer were engaged, under the superintendence of their ganger, in putting some strengthening chairs into the engine shed road, about 38 yards south of the water tank. About 7 a.m. the ganger and the other packer went across the main lines to fetch a chair, and left Jones to work by himself. Shortly afterwards, a six-wheels-coupled saddle tank engine came out of the shed and stood at the water tank for about four minutes. The fireman was occupied in taking water while the driver was oiling the slide bars. Neither of them noticed Jones at work, and after sounding the whistle the driver went ahead down the engine shed road, with the result that Jones was struck by the engine and fatally injured.

Owing to a curve in the line it would have been impossible for the driver to have seen Jones from the footplate, and by no means easy for the fireman to have done so, and I have no reason to believe that they were not keeping a proper "look-out." Before leaving Jones the ganger had informed him of his intention to fetch the chair, and Jones must have been aware that his safety was entirely dependent on his own vigilance. I am of opinion that no blame can be attached to anyone but the unfortunate man himself.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## HIGHLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

4th November, 1901.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of August 27th, I have held an inquiry into the circumstances attending the accident which occurred on August 17th, on the single line near Dunphail, on the Highland Railway, whereby engine driver George Begg Michie was fatally injured.

Michie and his fireman, William McIntosh, were working the 10.10 a.m. passenger train from Inverness to Aviemore. A pilot engine was attached to the train, in front of Michie's engine, at Forres. When approaching Dava Viaduct, which is about a mile south of Dunphail Station, Michie was standing in the driver's usual position, on the left hand side of the footplate, and McIntosh commenced firing. When the firing was completed, McIntosh noticed that Michie was not on the footplate, and assumed that he had gone to the pilot engine. McIntosh, therefore, worked the engine to Dava, where the train was booked to stop, a distance of about six miles. A surface man was standing on the line at the south end of the Dava Viaduct when the train passed, and immediately afterwards he saw Michie's body lying on the east side of the "four-foot" way at the north end of the viaduct. Judging from the condition of the ballast and from the unfortunate man's injuries, it would appear that he had fallen on his head just opposite one of the buttresses of the viaduct.

There is no evidence to show how or why Michie fell from his engine. I fear,

however, that McIntosh had some justification for his assumption that Michie had gone to the pilot engine, as it appears that the practice of going from a train engine to a pilot engine while in motion is not unknown amongst some of the drivers on this line. The deceased man, however, bore an excellent character, and I have no reason to believe that he would have adopted such a dangerous practice. Since the accident the Company have issued instructions to their drivers and firemen forbidding them to leave the footplates of their engines while the latter are in motion.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE AND LONDON AND NORTH-WESTERN JOINT RAILWAYS.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

11th October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of September 20th, I have held an inquiry into the circumstances attending the accident which occurred at Talbot Road Station, Blackpool, on the Lancashire and Yorkshire and London and North-Western Joint Railways, on August 22nd, whereby extra porter James C. Bullock was injured.

At about 7.15 a.m. Bullock went to the ashpit to fetch a wheelbarrow to the platform. The path from the ashpit to the bottom of the platform slope lies between No. 1 carriage siding and No. 6 platform line, and there is not room for a barrow on this path when both lines are occupied. As Bullock wheeled the barrow on to this path it was struck by a light engine coming out of the platform line, and Bullock was crushed against the coaches in the carriage siding. The platform line is on a curve and the driver could not see Bullock in time to warn him. Bullock might have detected the approach of the engine from the position of the signals, but as he had only been in the service for ten days he can hardly be blamed for not doing so. Owing to the curve of the platform line and the almost continual presence of coaches in the carriage siding, the signals which govern the approach of trains coming into the platform line are not visible from the ashpit, or from the path leading thereto, and under present circumstances there will always be a considerable risk of similar accidents occurring.

The most satisfactory method of removing this danger would be to find a safer site for the ashpit and the coal bunker which adjoins it. Failing the adoption of this method, which, I understand, presents some difficulty, I would suggest that in future a second man (who must be conversant with the working of the signals) should always be provided to act as a "look-out" man, in order to protect men taking barrows between the platforms and the ashpit or coal bunker. I also consider that this work should only be performed during daylight.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

23rd September, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 4th, the result of my inquiry into the circumstances attending an accident which occurred on the 18th August to shunter A. Peel at London Road, Manchester, on the London and North Western Railway.

In this case when Peel was running beside a train of waggons which he was uncoupling for disposal in the goods shed sidings at 2.0 a.m., he stumbled over a point

lever situated between Nos. 4 and 5 goods roads, and in falling dislocated his elbow. An electric arc lamp is placed about 30 feet distant from the point lever over which Peel fell, but the shadow caused by some intervening trucks obscured his view of the obstruction. The point lever in question lies parallel with the sidings, and is hinged so that when the switch is in its normal position the lever falls to the ground, there being only the depth of the handle, about  $2\frac{1}{2}$  inches, projecting above the ballast. Partial protection is provided by side timbers between which the point lever falls, but as these are only carried forward about half the length of the handle, there is still a liability to trip over the lever. To remedy this it would be advisable to sink the frame further, so that the top edge of the lever would lie in a recess level with the ground, similarly to the plan adopted with No. 4 points. This is especially necessary in this case as the lever is placed in a path regularly taken by shunters when uncoupling waggons. I would also recommend that all levers of this design situated in similar positions should be fitted in the same manner.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LONDON AND NORTH WESTERN RAILWAY.

Railway Department, Board of Trade,

1, Whitehall, London, S.W.,

16th October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 4th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 4th September to driver E. Harrington at Earlestown on the London and North Western Railway.

In this case Harrington was working the 9.35 a.m. passenger train from Manchester to Liverpool with tank engine No. 660. Just beyond Earlestown, guard Lofthouse who was inside the leading brake-van of a train which was being propelled on an adjacent line of rails saw Harrington leaning outwards from between the hand-rail pillars at the entrance to the engine cab, and looking backwards. Immediately afterwards Harrington's head came in contact with the projection forming the guard's outlook on the brake-van, and he was thrown from the engine with fatal results.

The space between the rails at the point where the accident occurred is six feet, and the clearance between the projection on the brake-van and the widest part of the engine was not less than 2 feet 4 inches. Harrington must therefore have been leaning outwards in a dangerous and unnecessary manner, and consequently the accident is attributable to want of caution on the part of the deceased.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LONDON AND SOUTH WESTERN RAILWAY.

Railway Department, Board of Trade,

1, Whitehall, London, S.W.,

5th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 18th September to brakesman J. W. Waite at Brentford, on the London and South Western Railway.

In this case, Waite was running with a number of waggons which had been loose-shunted into the down siding at about 2.0 p.m. for the purpose of applying the brakes, when he apparently stumbled, possibly when attempting to apply the new cross brake on the leading waggon, and falling across the rails he was run over with fatal results.



The brake lever in question can be operated from either side of the waggon, but the method of application differs from the usual vertical movement, in that it is applied horizontally. I am satisfied however that Waite had considerable experience in its use; therefore the mishap appears to have been accidental.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON, BRIGHTON, AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

18th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with your Order of October 2nd, I have held an inquiry into the circumstances attending the accident which occurred on September 13th, at Hailsham, on the London, Brighton and South Coast Railway, whereby shunter Percy Norgate was injured.

Norgate was acting as assistant guard on a goods train which was shunted into the up siding at Hailsham. The train consisted of 26 heavily loaded waggons and two brake vans. The siding is on a gradient of 1 in 110 falling towards the buffer stops. After the train had been brought to a stand in the siding Norgate left the brake in his van hard on, but the head guard, Lewis Pagden, left his brake only partially on. A waggon was placed on the up line by a down goods train and the engine of Pagden's train was required to put the waggon into the yard. Pagden had left his train and was standing near the waggon. After Norgate had uncoupled the engine from the train he got on to the step of the engine and told the driver to go ahead. As soon as the engine started Norgate noticed that the train was running back down the siding. He jumped off the engine and dropped two of the waggon brakes, but without any appreciable effect. He could not see a sprag near and therefore he picked up a fence post and used that as a sprag. This had the effect of stopping the train, but the post swung round and struck Norgate, knocking him down and causing injuries to his head.

Though the mishap was mainly of an accidental nature, it was primarily due to the fact that the train was insufficiently secured. Norgate was under the impression that Pagden had left his brake hard on, and had such been the case I have no doubt that the brake power would have been sufficient. When Pagden left his brake he was not aware that the engine was to be detached from the train, but before allowing Norgate to uncouple the engine he should have warned him not to rely on the brake power of his van.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

23rd September, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 4th, the result of my inquiry into the circumstances attending an accident, which occurred on the 14th of August, to Porter Robert O'Neil, at Lancaster, on the Midland Railway.

In this case, when O'Neil was leaning over the buffer head of a waggon standing in No. 1 unloading siding for the purpose of tying an end sheet string, another waggon, which was one of three which were being hand shunted, came against the waggon at which he was engaged, with the result that he was slightly crushed between the buffers.

The waggons were moved by direction of goods foreman Hill, who failed to warn O'Neil of what was about to be done, therefore he must be held responsible for the accident; but at the same time O'Neil acted unwisely in placing himself in such a dangerous and unnecessary position.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. P. S. MAIN.

#### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
23rd September, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 4th, the result of my inquiry into the circumstances attending an accident which occurred on the 16th of August to fireman W. L. Wale, at Grassmoor West Sidings, on the Midland Railway.

In this case, during shunting operations, Wale, who was working the engine, his hand on the regulator, and as the waggons buffered up he was thrown off his balance, straining the muscles of his arm.

The mishap was accidental.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. P. S. MAIN.

#### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
19th September, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of September 4th I have held an inquiry into the circumstances attending the accident which occurred on August 24th, at the Brightside Lane engine shed at Sheffield, on the Midland Railway, whereby cleaner John Higgs was injured.

Higgs was acting as fireman on a six-wheels-coupled goods tank engine which had been supplied with coal and water before Higgs and his driver came on duty. The driver was aware of this fact, but Higgs was under the impression that the engine was going to take water at the coal stage water crane, and as the engine was proceeding down the coal stage road he stepped outside the footplate in the direction of the tank cover without saying anything to the driver. As soon as the driver saw his intention he stopped the engine, but it passed the water crane, and Higgs was crushed between the tank of the engine and the wall of the coal stage, his ribs being bruised and his left shoulder being put out.

Even if it had been necessary to take water at this water crane, there was no reason for Higgs to leave the footplate before the engine came to a stand, and he must take the entire responsibility for the accident.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

#### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
26th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 2nd, the result of my inquiry into the circum-

stances attending the accident which occurred on the 3rd September, to guard J. Little, at Petterill Bridge Goods Station, Carlisle, on the Midland Railway.

In this case Little was in charge of a brake van which had been loose shunted into a siding used as the outlet road from the engine shed sidings. After he had brought the van to a stand preparatory to having it placed in a siding used for the storage of brake vans, an engine, which had been standing in the coal stage siding, was brought out by driver Austin, with the intention of running into the brake van siding to attach a van. This engine collided with the van in which Little was standing, and he was knocked down by the impact and sustained slight injury.

As both the side lamps and tail lamp on the van were lit at the time, and facing the direction from which the engine approached, I consider that driver Austin is somewhat to blame for not keeping a better look-out.

I find that it is the general practice to shunt brake vans into this siding from the up departure line without first ascertaining whether any engines coming out of the engine shed roads are likely to foul the siding, and that it is also customary for engines leaving the loco. sidings for the brake van siding to pass the outlet signal while it is at danger, and thereby foul the road; therefore the system of working appears to be faulty. I consider that steps should be taken to protect this siding while it is occupied in a manner similar to the case under enquiry, and would suggest that the Company issue instructions to the effect that the outlet signal applicable to the loco. siding (No. 26), must not be passed by engines proceeding to the brake van siding until it is pulled off, which should be an assurance that the road ahead will be kept clear.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

12th October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of October 1st, I have held an enquiry into the circumstances attending the accident which occurred at Leeds on the Midland Railway on September 14th, whereby Engine Cleaner Sam Haigh was injured.

At about 10 a.m. Haigh was assisting to sheet a waggon in No. 3 siding in the locomotive yard. While so doing he placed his left hand on the buffer head of the waggon, and the next waggon being closed up sharply by the yard pilot engine, his thumb was bruised between the buffers. It appears that Robert Savage, the driver of the pilot engine, who was aware of the fact that loading operations were in progress in No. 3 road, had shunted a waggon into the adjoining siding (No. 2) and was setting back steadily with other waggons into No. 3 siding, when he noticed that the waggon in No. 2 siding was running back towards the points. In order to get his engine clear of the points before the waggon reached them he gave his engine a little more steam, with the result that the waggons attached to the engine came into contact with the other waggons in No. 3 siding and slightly moved them. He was under the impression that he could get clear of the points without touching these waggons, but he failed to bring his engine to a stand sufficiently soon to effect this. Before setting back into No. 3 road he should have satisfied himself that the waggon in No. 2 was secure, and the mishap must be attributed to a slight error of judgment on his part.

Savage works the yard pilot engine regularly but has different firemen almost daily, who are drawn from the extra firemen and passed cleaners. As the fireman of the pilot engine has also to act as shunter, I consider that it would be more satisfactory if a regular man were appointed to the duty.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

12th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 17th, the result of my enquiry into the circumstances attending the fatal accident which occurred on the 17th September to Fireman E. Rudd, at Hasland, on the Midland Railway.

In this case when Rudd was walking along the six-foot way between the up and down goods lines from Hasland to Chesterfield, at 9.40 p.m., he was struck by a light engine and sustained injury which proved fatal.

The deceased, in company with Driver Bliss, had signed on duty at Hasland at 9.30 p.m. to work the 10.26 p.m. goods train forward from Chesterfield, and to take up this "working" it was necessary for the men to walk along the line for a distance of nearly two miles between Hasland and Chesterfield. There is no pathway between the two points clear of all lines, and as a considerable number of men have to take this route for the same purpose, I would recommend that the Company level a space at the side of the lines as a path for the men, and thereby diminish the danger which at present exists.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND AND GREAT NORTHERN JOINT RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

25th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 18th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 26th September to goods porter J. H. Drane, at Yarmouth Beach Station, on the Midland and Great Northern Joint Railway.

In this case, after Drane had finished tying the sheet strings on one side of a waggon standing in No. 4 siding, he attempted to cross over in front of the waggon to the other side, at which porter Edwards was similarly employed, but owing to a number of trucks being loose shunted into the siding, the waggons were closed up, and Drane, in attempting to jump clear, was caught between the buffers and crushed with fatal results.

A goods train was being marshalled in No. 4 siding, and the waggon which Drane was assisting to sheet was to form part of the train. As both men were fully aware that waggons were being shunted into the siding, it would appear that Drane failed to exercise sufficient care by placing himself unnecessarily in such a dangerous position. At the same time the practice of sheeting waggons during shunting operations is objectionable and dangerous, and I consider that the Company should issue instructions that such work must be done before waggons are moved or likely to be moved.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

5th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of August 2nd, I have held an inquiry into the circumstances attending the accident which occurred on July 8th at Burntisland Dock, on the North British Railway, whereby shunter Alexander Ramsay was injured.

Ramsay was in charge of the shunting at the Dock, and at about 5.0 p.m. was engaged in taking 18 loaded coal waggons from the station to the West shore sidings, a distance of about a quarter of a mile. The waggons were propelled by the pilot engine, and Ramsay stood on the buffers between the first and second waggons. The West Shore sidings converge at the entrance, and the second siding, which is supposed to hold 20 waggons, contained 21. As the waggons on which Ramsay was riding were being propelled into the third siding he attempted to step on to the buffer of the first waggon in the second siding, but the stationary waggon was so close to the moving waggons that he was unable to get his right foot clear, and he was drawn between the waggons and severely crushed. There is no evidence to show who was responsible for placing too many waggons in the second siding, but even if the siding had only contained the proper number of waggons Ramsay should not have attempted such a dangerous feat, and the responsibility for the mishap must rest with him. The practice of permitting shunters to ride on the buffers of waggons is very undesirable, and I consider that the Company should take steps to abolish it.

The Company's attention should also be drawn to the fact that the West Shore sidings are not lighted at all, although shunting operations are frequently performed therein after dark. The narrow spaces between many of the sidings make the provision of adequate lighting especially necessary.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

4th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of August 21st, I have held an enquiry into the circumstances attending the accident which occurred on August 5th, near Ladybank Station, on the North British Railway, whereby surfaceman George McLaggan was injured.

At about 8 a.m. McLaggan was engaged in taking out some of the bolts in the west rail of the down main line to the south of Ladybank Station. The "Kinross" siding runs parallel to and on the west side of the down main line, the distance between the lines being 6' 6". There was no need for McLaggan to stand foul of this siding, but just as the 8.5 a.m. passenger train from Ladybank to Kinross was being set back slowly into the siding, he appears to have stepped foul of it, and was struck by the foot-board of the brake-van and knocked down. A goods train was crossing from the up main line to the down main line at the time, and possibly this prevented McLaggan from hearing the approach of the passenger train. This accident, however, must be attributed to his own want of caution. At the same time, I am of opinion that neither William Scott the guard, nor Robert Chalmers the fireman of the Kinross train, were keeping a proper look-out, or they would have seen McLaggan in time to warn him. With regard to the fireman, it is only fair to state that he had to take the tablet from the signalman just before the accident occurred, but he could have had a clear view of the men working on the down line for some distance, and should have sounded the whistle to warn them.

The injured man is 67 years of age, but the Company's officials state that he was in full possession of his faculties.

I have, etc.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

19th September, 1901.

SIR,

I HAVE the honour to report for the information of the Board of Trade, that in accordance with your Order of September 4th, I have held an enquiry into the circumstances

attending the accident which occurred at Newcastle, on the North Eastern Railway, on August 10th, whereby fireman Ezekiel Haddock was injured.

Haddock was fireman on a tender engine which was standing in the "west end" carriage sidings. Some empty coaches were standing in the next siding, and at about 12.10 p.m. Haddock noticed that the further door of the compartment opposite the footplate of the engine was open. He opened the other door of the compartment, and entered the carriage and closed the further door. Just then his driver received a signal to draw out of the siding, and shouted to Haddock, who replied "all right." As the driver started the engine, Haddock stepped from the carriage to the footplate, but his hand was caught between the handrail of the engine and the door of the carriage and slightly injured.

The mishap may be attributed to excess of zeal on the part of the injured man.

I have, etc.,

J. H. ARMYTAGE.

The Assistant Secretary,

Railway Department, Board of Trade.

### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

29th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of November 9th, I have held an inquiry into the circumstances attending the accident which occurred on August 14th, at Marsh Lane, on the North Eastern Railway, whereby relief porter George Elgie was injured.

Elgie was acting as guard on a special fish train leaving York at 12.50 a.m. His train consisted of 11 waggons, the second and third waggons from the engine being for Marsh Lane. On arrival at Marsh Lane, at 1.45 a.m., the waggons were uncoupled by the foreman shunter, and after the train engine had taken them ahead over the points, they were taken into the yard by the pilot engine. The train engine with the one waggon attached set back on to the train, and while in the four-foot way coupling up, Elgie stumbled, and his arm was caught between the buffers and bruised. These fish trains are frequently made up of stock fitted with screw couplings, and Elgie, who had never worked with a regular goods train, was not using a coupling pole.

I consider the mishap to have been due to misadventure.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,

Railway Department, Board of Trade.

### NORTH EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

19th September, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of September 4th, I have held an inquiry into the circumstances attending the accident which occurred on August 16th, at Bog Hall Sidings, Whitby, on the North-Eastern Railway, whereby shunter Francis Frankland was injured.

Frankland came from Whitby Station with a train of empty coaches to be placed in the sidings, which are connected with the up main line to York. The train came to a stand clear of the siding points, and Frankland stood in the six-foot way foul of the down line, waiting for the points to be set. A down passenger train was approaching at about 4.15 p.m., and the driver sounded his whistle, but Frankland did not hear it in time, and he was struck by the right hand buffer of the engine and injured. The main lines at

this point are on a curve, and this would prevent Frankland from seeing the down train till it was close to him, but for the same reason he would have had to cross behind his own train in order to signal to his driver, and there was no need for him to have been standing foul of the down line at all.

I attribute the accident solely to want of caution on the part of the injured man.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

## SOUTH EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

7th October, 1901.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 4th, the result of my inquiry into the circumstances attending an accident which occurred on the 22nd August, to fireman John Gorham, at Brooklin Station, on the South Eastern and Chatham Railway.

In this case, when Gorham was attempting to exchange tablets with the signalman from the engine of a passing train which was running at a speed of about ten miles per hour, he missed the arm loop of the tablet he should have received, and falling from the engine, sustained considerable injury.

As the occurrence took place at 4 a.m., when it was quite dark, there being only a small platform lamp alight some eight feet distant from the place where the exchange should have taken place, it is not surprising that Gorham missed the tablet loop, and, moreover, the speed of the train was much too high to perform the operation with safety.

I understand the Company have no regulation restricting the speed of passing trains when an exchange of tablets has to be affected by hand.

As this operation is attended with considerable risk, I would recommend that instructions be issued limiting the speed of trains to four miles per hour when an exchange of tablets has to be made in daylight, and after daylight no exchange to be made until trains have been brought nearly to a stand.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

## SOUTH EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

7th October, 1901.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 13th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 27th August, to George Fowler, at Dover Priory, on the South Eastern and Chatham Railway.

In this case, Fowler, who was acting as brakesman, had to detach two trucks from a ballast train shunting in the locomotive sidings, and for some reason unknown, he discarded the use of his shunting pole and went between the waggons to release the couplings. While he was in this position, the train was brought back and he either slipped in attempting to get clear, or was knocked down, with the result that he was run over and fatally injured.

The train was moved by driver Head, who mistook a swaying movement of the arms made by guard Andrews when running round the train, to indicate that he had to come back sharply. Andrews, however, assures me that he had no intention of giving such a signal, and as Head was aware that Fowler was uncoupling, it is to be regretted that he failed to satisfy himself that Fowler was ready before performing the shunt.

I can obtain no evidence that it was necessary for Fowler to go between the waggons to release the coupling, but granted that it was needful, which is doubtful, as I understand the couplings were quite slack, it was certainly unwise for Fowler to place himself in such a dangerous position without first informing the other men concerned.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

### SOUTH EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
8th October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of September 25th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 10th September, to Frederick Johnson, at Dover Town, on the South Eastern and Chatham Railway.

In this case, Johnson was in the act of unhooking a horse chain from the draw-bar coupling of a "box" truck which was being drawn out of the shed siding, when he apparently slipped, and falling backwards, the wheels of the truck passed over his left leg and body, with subsequent fatal results.

The unfortunate occurrence was accidental, but at the same time I would suggest that the Company issue instructions to their shunters that whenever it is necessary to move trucks by means of horses, the chain must be attached to the side loops and not to the centre coupling, thereby considerably lessening the danger when unhooking.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

### SOUTH EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
8th October, 1901.

SIR,

I have the honour to report, for the information of the Board of Trade, in accordance with your Order of October 2nd, the result of my inquiry into the circumstances attending an accident which occurred on the 18th September, to William Newing, a carter in the employment of a private firm at Dover Harbour, on the South Eastern and Chatham Railway.

In this case Newing was loading timber on to trucks standing in the goods yard. After the loading had been completed, but before the timber had been properly secured, the waggons were moved out of the sidings for the purpose of placing two trucks on the main line. The timber waggons were then shunted back into the sidings and Newing's attention was drawn to the fact that one of the bolster stanchions required fixing. When he was attempting to secure it some other trucks were shunted against the one at which he was engaged, and the timber being loose fell from the truck on to Newing, with the result that his ankle was severely crushed.

The waggons should not have been moved until the loads were properly secured. For allowing this to be done Assistant Foreman Denne and Shunter Rason are to blame.

As it was not a part of Newing's duty to interfere in connection with securing the bolster stanchions, he must take the responsibility for his uncalled-for action.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.



## APPENDIX C.

## REPORTS OF SUB-INSPECTORS A. FORD AND J. J. HORNBY ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN...	<p>Date of Accident—21st August, 1901. Place at which Accident happened—Shields Colliery Sidings, Shieldmuir. Name of Person injured—Henry Martin. Age of Person injured—23. Capacity in which employed—Assistant Brakesman. Number of booked working hours per diem—12. How long on duty at time of Accident—5½ hours. Nature of Injury—Right leg bruised.</p> <p>Description of Accident—Martin had gone from Motherwell with the Shieldmuir pilot or shunting engine, and at about 10.15 a.m. he was engaged in shunting operations at the Shields Colliery Sidings. At that time there were attached to the engine a brake van and four waggons, which were labelled for repairs. Martin placed the waggons in the No. 2 siding, and noticing that the brake lever on the waggon nearest to the points was bent from the waggon and was out of order he placed a sprag in the wheel and left the waggon standing just sufficiently clear to allow other vehicles to run in the adjoining No. 1 siding into which he had next to shunt the brake van. As the latter was running into the siding Martin got on the foot-step for the purpose of applying the brake, but whilst he was walking along the step he collided with the bent lever on the waggon which he had just left in the No. 2 siding.</p>	<p>In this case, although the space between the No. 1 and No. 2 sidings is not more than 5 feet, which is not sufficient, I consider that this accident, which might have been far more serious, was due to carelessness on the part of the injured man.</p>	<p>I understand that the Company have decided to remodel the sidings at Shieldmuir, in which case it is to be hoped that more space between the sidings will be provided.</p> <p>A. F.</p>
	<p>Date of Accident—21th August, 1901. Place at which Accident happened—Carstairs Junction North Sidings. Name of Person injured—Robert Wilson. Age of Person injured—35. Capacity in which employed—Shunter. Number of booked working hours per diem—10½. How long on duty at time of Accident—6½ hours. Nature of Injury—Right knee bruised.</p> <p>Description of Accident—On the morning in question it was necessary to take 15 empty cattle waggons from the up to the down sidings, but owing to there being no existing arrangements for running round purposes, the waggons had to be pushed past the engine with a pushing stick. Whilst that was being done the prop slipped from its position and one end getting under the wheel of the engine the other end was forced upwards and struck Wilson's leg.</p>	<p>Under the circumstances the mishap was accidental, but at the same time there can be no doubt that the primary cause was the fact of there being no arrangements to enable engines to run round waggons at this place.</p>	<p>For future safety the Company should consider the advisability of providing siding or main line connections which would avoid the necessity of such a dangerous practice as that which led to this accident, and until that can be done I recommend that in future cases when it is necessary for the engine to be placed at the opposite end of waggons the latter should be taken to the South sidings for that purpose.</p> <p>A. F.</p>
	<p>Date of Accident—5th September, 1901. Place at which Accident happened—Swinehill Colliery, near Stonehouse. Name of Person injured—John Morran. Age of Person injured—32. Capacity in which employed—Brakesman. Number of booked working hours per diem—10. How long on duty at time of Accident—1 hour 40</p>	<p>The line from Swinehill Junction to Swinehill Colliery belongs to the Darnagavil Colliery Company. The line is single and rises 1 in 80 from the Junction for about quarter of a mile and then falls 1 in 200 to the Colliery. A few yards north-west of</p>	<p>For future safety it is desirable that the Company should be asked to urge upon the Darnagavil Colliery Company the necessity of providing sufficient accommodation for the traffic which has to be dealt with as there is plenty of space to put in additional sidings.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>CALEDONIAN—<i>cont.</i></b>	<p>minutes. Nature of injury—Right foot run over and so injured as to cause him to be off duty 5 weeks.</p> <p>Description of Accident — Morran was working with a mineral train from Ross Junction to Swinehill Colliery. On arrival at Swinehill Junction the brake van was as usual shunted into a siding there, after which the train consisting of 18 vehicles was propelled from the Junction to the Colliery, a distance of about half a mile, Morran and Brakesman J. Christine riding upon the buffers between the two leading vehicles. On approaching the Colliery sidings Morran observed that the points were lying in a wrong position, and for the purpose of setting them in a proper position he attempted to jump off the buffer, when the bottom of his trousers leg caught in the brake lever of the rear vehicle of the two he was riding between causing him to be thrown to the ground and trailed a short distance and ultimately his right foot fell on the rail, with the result stated above.</p>	<p>the Colliery sidings the line crosses the public road. Gates, which shut across the line, are provided for the protection of the crossing. In this case the gates were shut as the train was approaching and consequently the driver was proceeding very slowly and applying the engine brakes, and when the couplings became tight it caused the waggon to give a slight jerk just at the moment that Norman was attempting to jump from off the buffer to the ground. This and the obstruction formed by the brake lever in question projecting seven inches beyond the head stock of the waggon were the chief causes of the mishap.</p> <p>At the same time, if the brake van had been in front and the men had ridden inside it, the mishap would not have happened.</p>	<p>The present sidings will not accommodate the number of waggons which have to be dealt with. As a proof of this, when I visited the spot there were a number of vehicles standing on the running line between the Junction and Colliery. This, I was informed, is a frequent occurrence. Further, although there is a loop line at the Colliery where engines could run round their trains, it cannot be used for that purpose because it is always occupied by waggons, and from the evidence given the sidings are always so full that the brakemen cannot rely upon finding room even for their brake vans, and consequently they have to leave them at the Junction and incur the risks of riding upon the buffers of the vehicles, as in this case.</p> <p>In addition, the brake levers similar to the one that Morran became entangled with, which are being fixed on to the waggons owned by the Darnagavil Colliery Company to work a patent either-side brake, and which project seven inches beyond the head stock of the waggon, are so long as to form a source of danger to men engaged in shunting operations, and unless made shorter are likely to cause other accidents.</p>
	<p>Date of Accident—14th September, 1901. Place at which Accident happened — Craighead Junction, Hamilton West. Name of Person injured — Donald Grant. Age of Person injured—26. Capacity in which employed — Brakesman. Number of booked working hours per diem—12. How long on duty at time of Accident—8 hours. Nature of Injury — Face cut and two teeth knocked out.</p> <p>Description of Accident. — From Hamilton West to Craighead Junction—a distance of about half-a-mile—the main lines run east and west. On the north side of the main lines there are marshalling sidings extending from the station to the junction, and on the north side of the sidings there is a loop line, with siding connections, running eastwards from the junction to the station. On the morning in question a goods train from Paisley to Hamilton was run into the loop line, and after the waggons had been shunted into the different sidings, the engine and van had to be taken to the locomotive yard (near to the station). The engine driver, J. Minto, desired to take the main line route, and so gave the usual two whistles for permission to set the engine and van back on the facing line to the junction. Instead of setting the points accordingly, knowing that the loop</p>	<p>At the time when the driver sounded the whistle the engine and van were standing from 75 to 100 yards east of the points leading to the dead end, which are 150 yards east of the signal cabin, so that when the hand signal was given Minto and MacIntosh were from 225 to 250 yards apart. The distance from the points to the buffer-stops is 150 yards, and although I am satisfied that the primary cause of the mishap was the driver's misunderstanding the hand signal given by the signalman, for which under the circumstances mentioned I do not think Minto can be blamed, I think that with proper care Minto ought to have detected that his engine was taking a wrong route soon enough to have prevented the collision of the van with the buffer-stops, and seeing that he failed to do that I must hold him responsible for the accident.</p>	<p>Owing to the loop line being occupied it is frequently necessary for engines going to the sheds to set back on the facing line from the sidings or loop line to the Junction, and as the signal cabin is too far from the points for the signalman to give verbal instructions to the enginemen, I recommend that for future safety the Company should consider the advisability of either providing a fixed signal to control these points, or issuing special instructions that whenever an engine is required to be set back to the Junction, the fireman or brakeman should go to the signalman for permission to perform the operation.</p>

J. J. H.

A. F.

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<p>CALEDONIAN—<i>cont.</i></p>	<p>line was clear, the signalman, D. MacIntosh, states that he "gave a white light, moved up and down, for the driver to go forward through the loop." The driver evidently misunderstood the movement of the hand lamp, and thinking the signalman was calling him back he set the engine and van in motion, with the result that, instead of going to the main line, they were run into a dead end siding which is used as a shunting neck, and as the van collided with the buffer-stops, which are immediately behind the signal cabin, the guard, who was then engaged in writing out his working sheets, was thrown down and injured as stated above.</p> <p>Date of Accident—30th September, 1901. Place at which Accident happened—Saltoots. Name of Person injured—William Rowan. Age of Person injured—34. Capacity in which employed—Brakesman. Number of booked working hours per diem—12. How long on duty at time of Accident—Half-an-hour. Nature of Injury—Head injured. Off duty 11 days.</p> <p>Description of Accident—Rowan was working with the 10.15 a.m. down goods train from Ardrossan to Polmadie. On arrival at Saltoots one waggon, which was the second from the engine, had to be detached and placed in the goods shed, which is situated at the south side of the up main line. To get it there, Assistant Brakesman Charles John uncoupled behind it. The two vehicles were then propelled through the cross-over road and along the up main line until the engine was over the points leading to the sidings. While this was being done, John set the hand points for the middle road for the engine and waggon adjoining it to travel into, and remained at the points for the purpose of changing them after that vehicle was over them to allow the waggons for Saltoots to be fly-shunted into the goods shed road adjoining. For this purpose Rowan got upon the buffers between the two vehicles, the engine then drew them ahead quickly, and when it was approaching the hand points referred to, the driver slightly applied the brakes, which caused the coupling to become slack enough for Rowan to uncouple, after which he signalled the driver ahead quickly to allow sufficient space between the two vehicles for John to change the points, but instead of waiting until the vehicle attached to the engine was clear of them, he changed them between the engine and the vehicle, on the rear of which Rowan was riding, with the result that the vehicle was derailed. It afterwards came on the rails of the middle road again at the crossing, but the jerk made by it doing so caused Rowan to be thrown off the buffer into the four-foot way of the shed road, and the waggon for the goods shed passed over him. Fortunately all his body was clear of the rails, and he only received the injury stated above by the fall.</p>	<p>The chief responsibility for this mishap, which fortunately did not prove more serious, rests with Assistant Brakesman Charles John. He has since left the service, and I was unable to trace him; however, at the time he admitted to Mr. Carson, station master, that he was to blame for the accident.</p>	<p>Fly-shunting takes place daily at this station; this practice is so dangerous that, so far as I am aware, none of the railway companies make any provision as to how it should be performed. Although it is well known by those in authority that it is regularly done, they take no steps to stop the practice.</p> <p>For future safety the Company should put in an additional cross-over road, so that the engines can be taken round the vehicles and fly-shunting be dispensed with at this station; or they should make such arrangements as will enable the men to perform their work without incurring the risk involved in fly-shunting.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CARDIFF ... ..	<p>Date of Accident—25th September, 1901. Place at which Accident happened—Bute Docks. Name of Person killed—Robert Titherley. Age of Person killed—19. Capacity in which employed—Number Taker. Number of booked working hours per diem—9. How long on duty at time of Accident—8 hours 40 minutes.</p> <p>Description of Accident—Four different railway companies, viz., the Great Western, London and North-Western, Taff Vale, and Rhymney, work traffic to and from the Bute Docks. The trains enter and leave the Cardiff Railway Company's lines at Roath Line Junction, from which point they run through one of several arrival sidings until reaching the Stourfield Junction, about a quarter of a mile distant, where they pass on to a main line from which the waggons are shunted into sidings according to label.</p> <p>Parallel with the front or No. 1 arrival siding referred to, there is a single main line running between the two junctions mentioned. To avoid delay it is the practice for the "number takers" to copy the waggon numbers as the trains are running through the sidings. No one actually saw the accident in question, but from the evidence given it appears that at about 11.40 p.m. Titherley left a certain cabin (situated about halfway between the two junctions) for the purpose of copying the numbers of waggons which were then being taken through the No. 1 siding attached to a Rhymney Company's engine, and whilst so engaged he was knocked down and killed by a Great Western Company's light engine, which was then running over the single main line from Stourfield Junction to Roath Line Junction.</p>	<p>I do not think there can be any doubt that at the time of the accident Titherley was standing between the rails of the main single line, and that owing to the noise caused by the passing train with which he was engaged, he would not be able to hear the light engine approaching. The latter was carrying the usual head light (one white light) on the front, but having his full attention necessarily fixed on the moving waggons, it would not be possible for him to keep any look-out for "main line" trains.</p> <p>It may not have been necessary for the deceased to stand between the rails of the single main line, but even had he been standing between the main line and the front or No. 1 siding, according to the usual practice on the Cardiff Dock lines, he would still have been in a very dangerous position, and especially so, seeing that there is not a single fixed lamp provided anywhere near the spot.</p> <p>In this case I am of opinion that the primary cause of the accident was the arrangements which necessitated the deceased copying the numbers of waggons while they were passing so near to an adjoining main single line.</p>	<p>I am quite aware that in some cases it might cause slight delay for the trains to be kept standing while the waggon numbers are copied, but owing to the dangerous position in which the number takers have to place themselves to enable them to correctly see the labels of the passing waggons, I am strongly of opinion that even at the risk of delay the present dangerous practice should be at once discontinued.</p> <p style="text-align: right;">A. F.</p>
GLASGOW AND SOUTH-WESTERN.	<p>Date of Accident—9th July, 1901. Place at which Accident happened—Locomotive Yard, St. Enochs. Name of Person injured—John Murray. Age of Person injured—58. Capacity in which employed—Coalman. Number of booked working hours per diem—12. How long on duty at time of Accident—45 minutes. Nature of injury—Internal.</p> <p>Description of Accident—It is the practice at St. Enochs to coal tank engines direct from coal waggons. The engines are usually placed on a short siding leading to the turntable, and the waggons on a similar parallel siding. At about 6.25 a.m. on the date mentioned, tank engine No. 330 was taken from the passenger station to the locomotive yard for coal and water, but immediately that engine had been placed for coaling, another engine, No. 333, was taken to the same siding for a similar purpose. As the latter was required to leave the yard first, the former was moved ahead and preference given to the last. After engine No. 333 had been coaled it was taken a short distance from the coal waggon towards the outlet points, where it was detained by</p>	<p>The evidence shows that shortly after engine No. 330 had been coaled, the driver, J. Hastings, decided to get a supply of water, and whilst standing on the side tank he requested his fireman, W. McKie, to move the engine up to the rear of that standing in front, so as to be able to fix the hose of the water column. McKie states that he sounded the whistle and at once moved the engine, and it was when that was being done that Murray was injured.</p> <p>A special notice is posted in the engine sheds as follows:—"When an engine requires to be moved, the men in charge must give due warning, and also see that no person is under or in a position of danger about the engine before any movement is made." Hastings and McKie admit that they had just previously seen Murray working close to the engine, and that before moving it</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GLASGOW AND SOUTH-WESTERN— <i>cont.</i>	<p>signal, and engine No. 330 was again set for coaling. As soon as the necessary supply had been given, the coalman, J. Murray, left the waggon and commenced to clear up some small pieces of coal which had fallen to the ballast, but whilst he was so engaged in the four-foot way between the two engines, said to have been about 20 inches apart, the rear engine, No. 330, was moved ahead, with the result that Murray was crushed between the buffers and so injured as to necessitate his removal to the Royal Infirmary, where, at the time of my inquiry, he was still detained.</p> <p>Date of Accident—9th July, 1901. Place at which Accident happened—Greenock Harbour Goods Shed. Name of Person killed—David Robertson. Age of Person killed—51. Capacity in which employed—Goods Porter. Number of booked working hours per diem—12½. How long on duty at time of Accident—10½ hours.</p> <p>Description of Accident—At about 4.30 p.m. it was necessary for three waggons to be propelled into the goods shed. As that was being done, the leading waggon closed up to others standing outside the shed with such force as to cause them to run forward into the shed, where they collided with another waggon on which Robertson was working, and by the impact he was thrown over the end of the waggon and the wheels passing over his legs caused injuries from which he died the following morning.</p>	<p>they ought, according to the above instruction, to have seen that he was clear. Having failed to do that, although Murray is very much to blame for not making his intentions known to them, I consider they are chiefly to blame for the accident.</p> <p>A. F.</p> <p>The shunting was being performed by Shunter James Stewart and his assistant, A. McGarva. It appears that after Stewart had set the hand points and signalled to the engine driver to set back, he left to go to another part of the yard for the purpose of getting a drink of water. McGarva rode down the siding on one of the three waggons, but neither he nor Stewart gave any warning to the shedmen.</p> <p>In addition to rule 112A, the Company, through the weekly notices, have repeatedly issued the following instructions to shunters and others:—“Before waggons are placed in or drawn out of the warehouses, the guards or shunter must obtain from the shed foreman or other responsible person an assurance that all is clear, and that it is safe for the waggons to be moved.” Both Stewart and McGarva have been supplied with these instructions, and having failed to comply with them, I must hold them responsible for the accident; at the same time, from the evidence given, I am afraid that others, including the shed foreman, J. McRoberts (who is responsible for the safety of the shedmen), are very much to blame.</p> <p>Previous to this accident, the Company's instructions referred to have been practically ignored at Greenock Harbour.</p> <p>A. F.</p>	<p>For future safety, steps should be at once taken to enforce rule 273 (c) on this busy section of the line.</p> <p>J. J. H.</p>
	<p>Date of Accident—28th August, 1901. Place at which Accident happened—Eglinton Street, Glasgow. Name of Person killed—James Brannagan. Age of Person killed—20. Capacity in which employed—Plate layer. Number of booked working hours per diem—10. How long on duty at time of Accident—1 hour.</p> <p>Description of Accident—On the morning in question, Ganger Thomas Meaghan was in charge of</p>	<p>In this case the engine was running tender first, and while it was travelling at from 12 to 15 miles an hour through the west end of the station, Engine Driver William Cavan left the foot-plate of his engine, No. 359, and went to the front of it for oiling purposes, and therefore did not see any of the plate-</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GLASGOW AND SOUTH-WESTERN— <i>cont.</i>	<p>four men who were engaged packing the sleepers of the down main line at Eglinton Street Station. Three of the men were with Meaghan, but the deceased was working alone about 30 yards eastwards of them. On the approach of light engine No. 359, which was being taken from Corkerhill to St. Enoch's, Meaghan warned the men working near him, who all got clear. He also states that he called twice to the deceased to get clear, but he did not appear to hear the warning as he did not raise himself from the stooping position he was then in while at work, with the result that he was struck and knocked down by the engine and killed.</p>	<p>layers. There was no necessity for him to leave the foot-plate as the oiling he went to perform could and should have been done without him doing so, and he is to blame for acting as he did, which is contrary to rule 24 (a); at the same time, had he been on the foot-plate, the mishap might have occurred because, owing to the lines being on a sharp curve, he could not possibly have seen the deceased at work more than 30 yards away. The chief cause of the accident was the fact that no "look-out" man had been appointed to give proper warning to the deceased who was inexperienced with railway work, especially on such a busy and dangerous section of the line. This is a case where rule 273 (c) should have been strictly enforced, for which Ganger Meaghan was responsible; but it would appear that from the evidence given in this case, and in previous accidents which have happened from similar causes on this line, that those in authority have not taken proper steps to enforce the rule quoted.</p>	
GREAT CENTRAL ...	<p>Date of Accident—20th August, 1901. Place at which Accident happened—Manchester. Name of Person injured—William Pimblett. Age of Person injured—22. Capacity in which employed—Extra Goods Porter. Number of booked working hours per diem—11, with 1½ hours off for meals. How long on duty at time of Accident—7½ hours. Nature of injury—Back and chest injured. Off duty 1½ days.</p> <p>Description of Accident—On the afternoon in question, while Pimblett was inside a waggon at rest in the "provender mill siding" receiving the bags of provender as they were lowered by the hoist from the grain warehouse to the vehicle, it was moved by other waggons being shunted against it, causing him to fall against the side of the vehicle, with the result stated above.</p> <p>Date of Accident—28th August, 1901. Place at which Accident happened—Mexboro'. Name of Person killed—Arthur Stevenson. Age of Person killed—23. Capacity in which employed—Goods Checker. Number of booked working hours per diem—10½. How long on duty at time of Accident—1½ hours.</p> <p>Description of Accident—At about 9.30 on the morning in question, a pilot engine in charge of Shunter G. Haith was taken with two wag-</p>	<p>From the shunting neck to the place where Pimblett was working the lines are on a sharp curve. With a view to prevent accidents, the instructions are that a red flag must be exhibited on the leading vehicle of those standing in the provender mill siding while the men are at work. This was done in this case, but during shunting operations, Pilot Guard James A. Bingham, who was working alone for a few minutes, in his anxiety to facilitate the work, loose-shunted seven vehicles into the siding referred to, disregarding the special instructions as to warning the men and also rule 112 (a). This he frankly admits, and consequently he must be held responsible for the mishap.</p> <p style="text-align: right;">J. J. H.</p>	<p>The four waggons were uncoupled about 40 yards west of the goods shed, where the line slightly falls towards the shed although it is level inside it. From the evidence given it is clear, as the deceased stated shortly after the accident, that there was no one to blame, and further, that the waggons were not travelling</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— cont.	<p>gons in front into the shed road at the west end of the station, but as these vehicles would not stand clear of the adjoining sidings, Haith walked forward towards the goods shed to ascertain whether he could push the vehicles which were standing at rest in the shed road eastwards, so as to get them clear. On reaching the east end of the vehicles at rest in the shed road, he was requested by Goods Checker A. Reeves, in the presence of the deceased, to ease the couplings and to uncouple four waggons. Reeves then attended to the brake of the rear vehicle, and the deceased to the brake of the third vehicle upon the lever of which he rode for the purpose of applying pressure. While doing so, he appears to have forgotten that the goods shed wall was so near to the running line, with the result that he was crushed between it and the side of the waggon, and so injured that he died about four hours afterwards.</p> <p>Date of Accident—10th September, 1901. Place at which Accident happened—Goods Shed, Marylebone. Name of Person injured—James Dickenson. Age of Person injured—23. Capacity in which employed—Fitter's Labourer. Number of booked working hours per diem—11½. How long on duty at time of Accident—30 minutes. Nature of Injury—Right thigh bruised, nose and three ribs fractured.</p> <p>Description of Accident—Dickenson was helping an assistant fitter named A. H. Miller to refix a drop plate or cover over the wheels of a waggon-traverser between the No. 6 and No. 7 lines in the goods shed. To do this, the hinges attached to the cover had to be rivetted to the top plate, and in order to assist in effecting this, Dickenson had to sit in a certain position for the purpose of holding a hammer under the heads of the rivets. At about 7 a.m., whilst he was sitting in front of the cover which had been lifted into an upright position (like the lid of a box), and was engaged as stated above, a meat van was run through the No. 6 siding, and the foot step striking the cover plate, caught and forced it down on Dickenson, with the result stated.</p>	<p>quickly at the time. Therefore the mishap appears to have been accidental.</p> <p>J. J. H.</p>	
GREAT EASTERN ...	<p>Date of Accident—2nd July, 1901. Place at which Accident happened—Peterborough Locomotive Yard. Name of Person injured—Charles Bedford. Age of Person injured—22. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—11½. How long on duty at time of Accident—3½ hours. Nature of Injury—Left arm crushed.</p> <p>Description of Accident—On the morning in question Bedford and three other engine cleaners were engaged in cleaning an engine, No. 1162, standing near the buffer stops in the locomotive shunting</p>	<p>The traverser was in its usual position as kept when not in use, and there is no doubt that although it is only 14 inches from the rail, an ordinary goods waggon would have passed in safety, and as meat vans are so seldom worked to and from the goods shed, the Assistant Fitter, A. H. Miller, who was in charge of the work, did not think there would be any special danger. A warning was given by the capstan-man, who sounded a whistle to indicate that a waggon was approaching, but thinking that they were safe, neither Miller nor Dickenson moved from their working positions.</p> <p>In this case I am of opinion that the accident was due to want of caution on the part of Assistant Fitter A. H. Miller.</p> <p>Since, and in consequence of this mishap, the Company have given instructions that during such work in the future a red flag shall be exhibited near the traverser as a warning that no vehicles are to be worked through the siding concerned.</p> <p>A. F.</p>	<p>The Company's special instructions to enginemen read as follows:—</p> <p>"Before bringing engines into the shed road, where other engines are standing the drivers must sound the whistle and send a suitable person to warn all concerned."</p> <p>At the time of the mishap Scotney's assistant was engaged in moving other engines in the shed, consequently he was alone on the engine, and only the</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT EASTERN— <i>cont.</i>	<p>spur. At about 9.30 it was necessary to take the engine into the shed, but as it was without steam, the shed shunter, J. Sootney, took another engine, No. 538, from the turn-table road for the purpose of removing it. While the second engine was running up the spur Sootney twice sounded the whistle as a warning to the cleaners, but although the other men heard the whistle, Bedford states he did not do so, and while he was standing immediately in front and engaged in cleaning the rear end of the tender—which stood nearest the approaching engine—he allowed his left arm to get in front of the buffers, with the result that as the moving engine closed up to that at which he was working his arm was crushed. He was off duty a month.</p>	<p>first part of the instruction was carried out. He fully admits he did wrong in allowing the moving engine to close up to the one at which the cleaners were working without first ascertaining that all were clear, and he expresses his regret for doing so, but at the same time I certainly think that had Bedford been keeping a reasonable look-out for his own safety the accident in this case would not have happened.</p> <p>A. F.</p>	
	<p>Date of Accident—13th July, 1901. Place at which Accident happened—Wymondham. Name of Person injured—Wm. Stone. Age of Person injured—57. Capacity in which employed—Carman. Number of booked working hours per diem—12. How long on duty at time of Accident—6½ hours. Nature of Injury—Scalp wound and fractured shoulder bone.</p> <p>Description of Accident—Stone and a goods porter named R. Burham were engaged in transferring a piano from a box waggon to a trolley. The waggon was standing in the middle siding and the trolley was set opposite the door of the waggon. At about 12.30 p.m., just as they were carrying the piano and in the act of stepping backwards from the waggon to the trolley, the former was struck and moved forward by two other waggons which during horse shunting were being placed in the same siding, with the result that Stone fell to the ground and received injuries as stated above.</p>	<p>The moving of the waggons was brought about as follows:—</p> <p>It was necessary for two waggons to be taken from the goods shed to the middle siding ready for attaching to an expected goods train. As the waggons were being drawn by two horses into the siding the horse driver, G. Shepherd, states that he lowered the hand-brake levers, which were on the left or platform side of the waggons, thinking that would be sufficient to stop the waggons where required, but owing to the siding being on a slight falling gradient and the waggons running freely the brakes as left proved insufficient. As the waggons were approaching the one at which Stone was working, Shepherd seeing that the latter would probably be moved—and owing to the waggons being close to the fencing on the platform, and as he was not able to get to the brake levers—he called to Stone to be prepared, but the warning was then too late.</p> <p>I am satisfied that Shepherd did not intend to move the standing waggon; at the same time, knowing the condition of the siding and that in taking the moving waggons close to the one in question there was a probability of the latter being moved, he certainly ought to have either warned Stone himself or sent his chain-boy to do so, and having failed to do that I must hold him responsible for the accident.</p> <p>A. F.</p>	
	<p>Date of Accident—15th July, 1901. Place at which Accident happened—Chadwell Heath. Name of Person injured—Alfred Matthews.</p>	<p>Neither the driver, Wm. Day, nor the fireman of the excursion train, knew anything of the mishap</p>	<p>For future safety I recommend that whenever Contractors' men are working so near a running line a</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT EASTERN— <i>cont.</i>	<p>Age of Person injured—24. Capacity in which employed—Contractor's Labourer. Nature of Injury—Right hand injured.</p> <p>Description of Accident—Matthews is employed by Mr. C. J. Wills, Railway Contractor, and was engaged on new works in necessary connection with the widening of the lines at Chadwell Heath. On the morning in question several waggons were placed on a temporary line—which was parallel with and 10 feet from the down main line—about 200 yards east of the station. After the waggons had been filled with earth, at the request of the contractor's ganger, H. Williams, Matthews and another man named W. Brown, went on the main line side of the standing waggons for the purpose of clearing up some of the earth which during the loading of the waggons had fallen over the side. At about 6.50 a.m., whilst they were so engaged, failing to notice a special excursion train approaching on the down main line, just when in the act of throwing up a shovelful of earth, Matthews was struck on his right hand by the engine and knocked down, receiving injuries from which at the time of my inquiry he was still off duty.</p> <p>Date of Accident—18th July, 1901. Place at which Accident happened—Stratford Locomotive Yard. Name of Person injured—Alfred Ditcham Wiseman Gosling. Age of Person injured—17. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—12. How long on duty at time of Accident—9. Nature of Injury—Left arm bruised.</p> <p>Description of Accident—On the morning in question Gosling was working with shed-shunter James Hutton and his assistant C. Thouless, for the purpose of learning the duties of the latter. At about 3 o'clock it was necessary to place an engine, then standing on the middle road in the locomotive yard at the rear of five others on the No. 2 road, inside the sheds. After drawing the five engines on to the straight road and ahead of the hand points in the yard, Hutton called to Thouless, then near the points, to fetch the engine from No. 2 up to the rear of the five, in which position they were all to be propelled into the sheds. Gosling understood this instruction to apply to him, and so went to fetch the single engine, but in doing so he allowed it to collide with those standing with such force that by the impact he was thrown backwards on the footplate and injured as stated above.</p>	<p>until some weeks afterwards, but the driver fully admits that he did not see or sound his engine whistle to warn the men at work near the running lines, either on the new works or in the shunting sidings opposite, which I think with proper care and according to Rule 153 he should have done.</p> <p>Matthews had only been employed on the new works for three days previously. He had not had any previous experience of railway work, consequently although he may not have exercised the care necessary for his own safety, I do not think he can be held solely to blame. In placing the men in the position mentioned, without some protection for their safety, the ganger—who had only been employed by the Contractor during the previous week, and has since left his service—is to my mind somewhat to blame. At the same time I am certainly of opinion, that as Williams knew nothing of the heavy main line traffic he ought not to have been put in charge of inexperienced men working so near to the main line.</p> <p>There are special instructions posted in the sheds forbidding unauthorised persons moving engines in steam. Thouless and Gosling are both engine cleaners and so have no authority to move engines. Gosling's excuse for doing so on the occasion in question is that he then considered it was his duty to obey the instructions—which he understood to apply to him—from Hutton, and, taking all the circumstances into consideration, I do not feel that I can blame him. Hutton fully admits that he did wrong in making the request mentioned, and I am therefore of opinion that he is responsible for the mishap.</p>	<p>man knowing the traffic should be appointed as a look-out man, besides which the engine drivers should be instructed to sound their engine whistles while approaching and passing the points concerned, as they are expected to do when passing shunting sidings—<i>vide</i> Rule 153.</p> <p>A. F.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT EASTERN— <i>cont.</i>	<p>Date of Accident—24th July, 1901. Place at which Accident happened—Locomotive Yard, Cambridge. Name of Person injured—Robert John Howlett. Age of Person injured—21. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—12. How long on duty at time of Accident—1½ hours. Nature of Injury—Right eye bruised and nose out. Description of Accident—At about 10.30 p.m., whilst in the shed, Howlett received instructions from the foreman, James Watson, to clean an engine (No. 711) which was then standing on the No. 9 line outside the shed. To do this he had to cross a portion of the locomotive yard. When taking a certain path over the No. 8 siding, in which there is a pit used for engine lifting purposes, he apparently failed to notice his exact position and fell into the pit, with the result stated.</p>	<p>The greater part of the locomotive yard is well lighted with a lucigen light, but at the time of my inquiry, owing to the position of an engine standing on the No. 8 line and of certain fixtures such as sheer legs, the position of the pit, the end of which is close up to the path, could not be clearly seen. Howlett has since left the Company's service, and I am therefore unable to ascertain the condition of the siding on the night in question. There is a probability that he did not exercise the care necessary under the circumstances, but I am of opinion that the primary cause of the mishap was an insufficiency of light at the point where the accident occurred.</p>	<p>For future safety I recommend that a lamp should be so placed as to fully expose the position of the path and pit in question at night. A. F.</p>
	<p>Date of Accident—1st August, 1901. Place at which Accident happened—Haughley Junction. Name of Person injured—Percy MacMillan Diamond. Age of Person injured—26. Capacity in which employed—Fireman. Number of booked working hours per diem—11½. How long on duty at time of Accident—6½ hours. Nature of injury—Head and back injured. Description of Accident—Diamond was working with the 2 p.m. goods train from Peterborough to Stowmarket. On reaching Haughley Junction at 7.30 p.m. the train (consisting of engine, 30 loaded coal waggons, and brake-van) was run into the back platform line where it was intended that the train should be brought to a stand, after which the engine was to be taken to the turntable. The line referred to is on a slight gradient, consequently, to prevent the waggons moving after the engine had been detached, it was necessary, according to Rule 181, to place sprags in the wheels of the waggons. Instead of Diamond waiting until the engine had been brought to a stand and then using the proper sprag such as is provided, he left the footplate of the engine while it was still in motion, and picking up a pinch lever about five feet in length which was lying on the ballast close by, he placed it in one of the waggon wheels as a sprag, with the result that in its motion with the wheel he was struck by it and knocked down.</p>	<p>Engine-driver H. Hitchborn and Diamond both acknowledge that it was wrong for the latter to leave the engine in motion, and Diamond fully admits that he is to blame for using a pinch lever for the purpose stated. I consider the mishap was due to Diamond's own want of caution. A. F.</p>	
	<p>Date of Accident—14th August, 1901. Place at which Accident happened—Ipswich. Name of Person injured—Arthur J. Backhouse. Age of Person injured—26. Capacity in which employed—Waggon lifter. Number of booked working hours per diem—11½. How long on duty at time of Accident—9½ hours. Nature of Injury—Left elbow injured; off duty 16 days. Description of Accident—During</p>	<p>In this case waggon lifter Backhouse, who was inexperienced in shunting operations, was assisting another waggon lifter, named Hunt, to perform the necessary shunting operations in the locomotive and waggon shops' sidings. This mishap appears to have been accidental. At the</p>	<p>For future safety, it is desirable that the Company should make arrangements for a shunter to be appointed at this place to take charge of the shunting operations, which are heavy, and that arrangements should be made for Rule 23 (a) to be strictly adhered to at all times. J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>GREAT EASTERN— cont.</b>	<p>shunting operations in the locomotive sidings Backhouse was between the shunting neck and the up main line when he was struck by the engine of a passenger train travelling on the latter line, and injured as stated above.</p> <p>Date of Accident—6th September, 1901. Place at which Accident happened—Exton Sidings, King's Lynn. Name of Person injured—Ernest Smith. Age of Person injured—26. Capacity in which employed—Shunter. Number of booked working hours per diem—12 (less 3 hours for meals). How long on duty at time of Accident—14 (less 3 hours for meals). Nature of Injury—Third finger on right hand injured.</p> <p>Description of Accident—Owing to the sudden illness of one of the shunters, who was due on duty to relieve Smith at 8 p.m., it was arranged that Smith should remain on duty till 12 p.m. (16 hours); but at about 10 p.m., during shunting operations in the Exton marshalling sidings, and whilst running to reverse the position of the No. 3 hand points, he stumbled over the trunking, which is placed over the point rod, and falling with his right hand on the point lever, he received injury which necessitated his being off duty 3 weeks.</p>	<p>same time, it is clear from the evidence given, that neither Backhouse nor Hunt were properly qualified persons to perform shunting operations, and they had only one coupling pole between them, although both had to perform coupling operations.</p> <p>The shunting neck which runs parallel with the up main line being on a curve, it is absolutely impossible for an engine driver to see hand signals given by the shunters from the position of the hand point levers, and consequently, for nearly every shunt made, the shunters have to cross the sidings for signalling, and then re-cross in front of moving waggons to reach the points, and it was whilst doing the latter that Smith was injured.</p> <p>Although the trunking over which he stumbled is fixed to protect a single point rod, it covers a surface of 6 feet 6 inches by 3 feet 6 inches, and, except for the 18-inch slope, it stands 3 inches to 4 inches above the path, and so forms a much greater obstruction than that it is intended to prevent.</p> <p>The sidings are fairly lighted, but I consider the present arrangements for signalling, and also for covering rods, as in this yard, are very dangerous, and that it is to that cause this accident is due.</p>	<p>To prevent the shunters having to cross to the main line side of these heavy marshalling sidings for hand signalling, I suggest that a shunting gong (similar to those in use on the London and North Western Railway), which might be fixed in the shunting neck, and worked to a code by a lever near the hand points, should be provided, and that instead of the present arrangements for covering hand point rods, the latter should be cranked to the ground, and protected by side timbers, similar to the now general practice on the North Eastern, Lancashire and Yorkshire, and other lines.</p> <p style="text-align: right;">A. F.</p>
<b>GREAT NORTHERN...</b>	<p>Date of Accident—22nd July, 1901. Place at which Accident happened—King's Cross. Name of Person injured—John Burbage. Age of Person injured—53. Capacity in which employed—Engine driver. Number of booked working hours per diem—10½. How long on duty at time of accident—2½ hours. Nature of Injury—Left arm cut off.</p> <p>Description of Accident—On the night in question Burbage worked the 9.12 p.m. express passenger train from Peterboro' to King's Cross, with engine No. 1382. Immediately on arrival at King's Cross Burbage got off the footplate on the right side, and walked along the No. 4 platform, until reaching the wide part of the side framing, then, after looking at certain parts of the motion, he walked round the framing to the left side of the engine. On reaching the footstep he got off the engine again, and whilst he was examining the different axle boxes, he was spoken to by another driver, J. Pateman (who had arrived with a train just in front of that worked by Burbage, and</p>	<p>It appears that while Burbage was examining his engine, Knight had been engaged in rearranging the position of the head lights, and as soon as he (Knight) had returned to the footplate, the shunter called for the engine to be eased back, to enable him to uncouple it from the train. Knight then looked over the left side of the engine, and seeing Burbage was standing between the rails of the No. 3 line, and still in conversation with Pateman, without asking Burbage if he might do so, or even sounding the whistle, Knight re-crossed the footplate and reversed the motion, but before he could open the regulator, Burbage, not knowing anything about the intended movement, returned to the side of his engine, and took up the position mentioned, and on Knight applying the</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN — <i>cont.</i>	<p>was standing on the No. 3 platform) respecting his (Pateman's) engine, No. 1357. Whilst in conversation with Pateman, Burbage again commenced to examine his engine, and unfortunately he put his left arm between the spokes of the left driving wheel for the purpose of feeling the bearings; whilst he was doing that, his fireman, Ernest Knight, opened the regulator in response to a call from a shunter to ease up for uncoupling, with the result stated above.</p>	<p>steam, the wheels slipped round and cut off Burbage's left arm.</p> <p>As an experienced engine driver, Burbage certainly acted very unwisely in placing his arm between the spokes of the wheel, but at the same time, as he fully admits, Knight did wrong in moving the engine without first asking or warning Burbage, and, in my opinion, he is chiefly to blame for the accident.</p> <p style="text-align: center;">A. F.</p>	
	<p>Date of Accident—4th August, 1901. Place at which Accident happened—Newark. Name of Person killed—John Clark. Age of Person killed—31. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—9½ hours.</p> <p>Description of Accident—On the morning in question, at about 1.30, 28 waggons were being propelled into the straight road in the Cross Street yard; 20 of which had to remain in that siding with the rear vehicle just clear of the crossing gates, and although no one witnessed the accident it is assumed that while the deceased was turning round to give the driver a red light with his hand lamp, which was in his right hand, that he had his coupling pole under his left arm, which caught between the first and second railings of the wicket-gate (as they were afterwards found to be broken), and he was thrown under the wheel of the second vehicle from the engine and instantly killed.</p>	<p>The vehicles for the Cross Street yard are marshalled in the down sidings and afterwards propelled from there for about a quarter of a mile round a curve on a rising gradient of 1 in 120 to where they are required. Before this operation is commenced the charge shunter (as the deceased did in this case) walks forward to the crossing, opens the gates, and remains there to warn the public and give the necessary signals to the driver. While he was so engaged it is supposed that his coupling pole caught in the railings of the wicket-gate which were only 2 ft. 9½ ins. from the running line.</p> <p>The mishap appears to have been accidental.</p>	<p>The wicket-gate is too near the running line, and it should be altered to give as great a clearance as the crossing gates, which are 4 ft. 7 ins. from the running line.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—8th August, 1901. Place at which Accident happened—Belle Isle, near King's Cross. Name of Person injured—William Jarman. Age of Person injured—25. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—9½ hours. Nature of Injury—Head injured. Off duty 5 weeks.</p> <p>Description of Accident—Jarman was working with Driver J. Rogers on No. 10 engine, and was engaged in shunting operations at King's Cross Passenger Station. At about 10.40 a.m. the Foreman Shunter on duty instructed Rogers to take his engine against an empty train which was standing in No. 3 arrival road. While this was being done the shunter called out "Shunt," this being the usual signal given to the enginemen when the trains have to be shunted from one road to another; but when the train was being drawn out of No. 3 road the same shunter called out to Rogers, "Right away to Western Sidings, Finsbury Park." Jarman, hearing this call and knowing that the head lamp was not in position, left the footplate and clambered over the coals to the</p>	<p>The mishap was chiefly due to the Foreman Shunter having changed his mind as to placing the empty train, between the time when the engine was taken against it and when it was drawn out, and then instructing Rogers to go "right away" when he was approaching the entrance to Belle Isle tunnel, as, had Rogers and Jarman known in the first instance that the train had to be taken to Finsbury Park, the latter could have placed the lamp in position while the engine was being coupled to the train. I was unable to trace who the Foreman Shunter was on this occasion as none of the witnesses could remember. Jarman acted unwisely in exposing himself to danger in the manner described, and Rogers is not free from blame for neglecting to bring his engine to rest while Jarman placed the lamp in position; but it would appear that the practice</p>	<p>The accidents to enginemen on this line through leaving the footplates of their engines in motion for various purposes have been so numerous that the Company should be again pressed to strictly forbid it, and be informed that some of the other Companies have done so with good results. Further, the distant signal arm with which Jarman came in contact could with advantage be fixed higher, and this should be done.</p> <p style="text-align: right;">J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN — <i>cont.</i>	<p>back of the tender, while the engine was running through Belle Isle Tunnel, for the purpose of placing the lamp where it was required before reaching Belle Isle signal cabin. On emerging from the tunnel he fixed the lamp in position, and when returning to the footplate he was struck on the back of the head by the arm of the distant signal from Copenhagen signal cabin, which is fixed 22 yards north of the tunnel mouth, and when off, as in this case, is 14 ft. 5 ins. above the rail level, with the result stated above.</p> <p>Date of Accident—24th August, 1901. Place at which Accident happened—Ardaley. Name of Person killed—Alfred Dudley McLaughlin. Age of Person killed—20. Capacity in which employed—Clerk. Number of booked working hours per diem—11. How long on duty at time of Accident—35 minutes.</p> <p>Description of Accident—At Ardaley there are four lines running north and south. The first and second lines from the west are known as the "Branch" lines and the two others as the "Fast" or main lines.</p> <p>There are three platforms, namely, the "down slow," the "island" which is between the branch and main lines, and the "up main." At the north end of the station there is an overbridge which is connected with each of the three platforms, and at the south end there is a level crossing necessarily arranged for luggage, &amp;c. The Station Master's Office is on the No. 1 or "down branch" platform, and the guards' room is situated in the up goods yard on the east side of the up line, about 300 yards south of the platforms.</p> <p>McLaughlin was employed in the Station Master's Office, but at about 9.5 a.m. it was necessary for him to take the daily order sheet to the guards' room, to do which he attempted to pass over the level crossing, but whilst doing so he was struck by the engine of a passing up express train and killed.</p>	<p>of enginemen leaving the footplates of their engines in motion on this line is far too general, and there is no definite instruction forbidding it.</p> <p>A policeman is provided to regulate the foot traffic over the level crossing, and at the time of the accident he (William Tokins) was standing in the 10-ft. space between the branch and fast lines. At that time a train was standing at the main line side of the island platform, and knowing that an up express train was approaching, and seeing McLaughlin hurrying as if intending to pass over the crossing before the trains, Tokins held out his arms over the crossing, and twice called "Stop," but, avoiding Tokins, McLaughlin rushed forward, and then before he could get clear he was knocked down.</p> <p>The train standing at the down island platform may have prevented the deceased seeing the one approaching on the up line, and it is very probable that he understood the warning from Tokins to mean that the down train was about to be set back, in which case he might have got over without injury; at the same time, having neglected to act to the warning given, I am of opinion that the accident was due to his own want of caution.</p> <p style="text-align: right;">A. F.</p>	<p>For future safety it is desirable that the Company should either supply their supernumerary porters with rules, or make arrangements that when a number of them are working together, as in this case, some one who is well acquainted with the rules should have charge of the working.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—3rd September, 1901. Place at which Accident happened—Nottingham. Name of Person injured—William Seaton. Age of Person injured—49. Capacity in which employed—Labourer employed by the Gas Company. Nature of Injury—Back injured. Off duty 1½ days.</p> <p>Description of Accident—Seaton was engaged removing cinders from the Gas Company's yard into a waggon standing in the "Old Canal Road." For this purpose, one end of a long plank was placed on the ground (opposite the exit from the gas yard) and the other end against the side of the vehicle. In addition, two short planks were placed across the top of the waggons</p>	<p>While Seaton was engaged loading a waggon standing in the "Old Canal Road," five men were pushing by hand a waggon into the "Middle Road," the adjoining siding. The evidence is conflicting as to whether the latter vehicle caught the former (owing to it being foul) or one of the short planks on the top of that vehicle, but in either case it was the duty of the men who were pushing the vehicle into the Middle road to warn Seaton, in accordance with Rule 112 (a), and they neglected to do so. How-</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN— <i>cont.</i>	<p>which were moored as required so as to enable Seaton to distribute the cinders evenly in the waggon. In this case he had wheeled his barrow up the long plank and had got it upon one of his short planks, and was in the act of tipping it, when the waggon was moved, causing him to be thrown to the ground, with the result stated above.</p>	<p>ever, none of these men (who were all supernumerary goods porters) had been supplied with a copy of the Company's rules, and therefore they cannot be blamed for not carrying them out; and it would appear that this mishap, which might have been more serious, was chiefly due to their ignorance of the rules and inexperience in railway work.</p>	
	<p>Date of Accident—20th September, 1901. Place at which Accident happened — Nottingham Goods Yard. Name of Person injured—William Holland. Age of Person injured—54. Capacity in which employed — Waggon Examiner. Number of booked working hours per diem—12. How long on duty at time of Accident—5½ hours. Nature of Injury—Small bone in right foot fractured and body badly bruised.</p> <p>Description of Accident — On the night in question, during shunting operations, two waggons—one a North Eastern empty and the other a Great Northern loaded with grain—left the rails at certain hand points in the shunting neck. After they had been re-railled it was necessary for the wheels to be gauged. Holland was present for some time, but as the waggons did not appear to be much damaged, and as he had to leave to examine a train in another part of the yard, he ascertained from the foreman shunter, G. Rookley, before leaving, into which siding the waggons would be shunted. After being away for about 20 minutes, Holland went direct to the grain or hoist siding where he had learned that the loaded waggon, with others, was to be shunted, and without giving any intimation to the shunters as to what he was about to do, he got underneath the waggon. Whilst he was in that position some other waggons were run into the same siding, with the result that on the latter closing up against that under which he was working Holland was injured, as stated above.</p>	<p>Holland was aware that the grain siding was in constant use, and as he now fully admits before placing himself in the position mentioned he certainly ought to have made known his return and intentions to the shunters. Seeing that he failed to do that, I am bound to conclude that in this case the accident was due to his own want of caution.</p> <p>A. F.</p>	
	<p>Date of Accident—23rd September, 1901. Place at which Accident happened — Bradford. Name of Person injured—John Noble. Age of Person injured—46. Capacity in which employed—Supernumerary Goods Porter. Number of booked working hours per diem—Irrregular. How long on duty at time of Accident—8½ hours. Nature of Injury—Right shoulder and left knee injured. Still off duty on 4th December.</p> <p>Description of Accident—On the day in question, at about 3.30 p.m., Noble and Goods Porter A. Kendal were engaged unloading pieces of logwood from a waggon standing in the back crane road to a pile by the side of the line. Whilst so engaged they, as usual, had the door of the</p>	<p>The mishap was due to the men having been regularly permitted to unload waggons with the doors propped up in the same unsatisfactory manner as in this case without proper precaution having been taken to secure the waggon doors upon which it was necessary for them to walk while engaged removing the pieces of timber from the vehicles. Noble had not been supplied with a Rule Book, and had only been in the service nine weeks, therefore he was inexperienced in railway work.</p>	<p>For future safety it is desirable that arrangements should be made for the waggon doors upon which the men have to walk to be properly secured before they commence to unload the vehicles.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN— <i>cont.</i>	vehicle propped up with an uneven piece of logwood about 4 feet 2 inches long, and when removing one piece from the waggon which they were unable to lift they rolled it along the waggon door, and when it fell it came in contact with another piece resting on the ground and rolled back towards the waggon against the piece supporting the door, causing the door to fall, Noble falling with it to the ground, with the result stated above.		
GREAT WESTERN ...	<p>Date of Accident—7th August, 1901. Place at which Accident happened—Clifton Bridge. Name of Person injured—James Hurley. Age of Person injured—43. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Ribs, hips, and knee bruised.</p> <p>Description of Accident—Hurley was working in charge of the 9.5 a.m. goods train from Stapleton Road to Portishead and back. On arrival at Clifton Bridge there were seven waggons to detach into what is locally known as the "Ballast siding." The station master, J. King, suggested that it would be best to run the engine round the waggons and propel them into the siding, but to <i>save time</i> Hurley decided to tow them. As the waggons were thus being passed into the siding, seeing they were running very freely, the station master called to the engine driver to stop, and immediately the rope was slackened. Hurley tried to release it from the waggon, but before he could do so the portion dragging along the ballast caught the end of a check rail and was broken. One of the loose ends then twisted round Hurley, and knocking him down caused injuries as stated above.</p>	<p>Every arrangement necessary for running round purposes is provided at this station, and, therefore, although Hurley may have considered that in towing the waggons he was forwarding the working, I am of opinion that the accident was due to want of caution. At the same time it is to be regretted that the station master, who is held responsible for the safe working of his station, did not insist on his request being acted to.</p> <p>For future safety the Company have given instructions that the towing of waggons at the station in question is to be discontinued.</p> <p>A. F.</p>	
HIGHLAND ...	<p>Date of Accident—28th August, 1901. Place at which Accident happened—Gollanfield. Name of Person injured—Louis Grant. Age of Person injured—28. Capacity in which employed—Assistant Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—1½ hours. Nature of Injury—Right hand injured. Off duty one week.</p> <p>Description of Accident—Grant was working with the 3.42 p.m. up goods train from Inverness to Perth, which arrived at Gollanfield at about 4.25 p.m., where two waggons had to be detached and placed in the down siding at the west end of the station. To get them there it was necessary for two other waggons which were standing in the siding to be moved further eastwards in order to make room for them. For this purpose Grant attached one end of the tow-rope to the side chain of the engine and the other end to the loop fixed on the side of the leading waggon in the siding. The engine was then moved forward, but at the</p>	<p>The mishap appears to have been accidental. At the same time Grant acted unwisely in not taking the engine against the waggons in the siding to push them eastwards in order to make room for the two to be detached, and also in attaching the tow-rope to the engine while it was on the up main line and to the waggons in the down siding, as this necessitated the rope being stretched across the down main line. This system of tow-roping is considered so dangerous by some of the other companies that it is forbidden.</p>	<p>The tow-roping is somewhat heavy at this station, and for future safety the Company should consider the advisability of putting in a trailing connection from the up main line to the down siding at the east end. There is ample room for this to be done, and by this means the dangerous operation of tow-roping would be dispensed with. Further, the Company should be asked to issue general instructions similar to those shown below, which are extracted from the "Appendix" of the Caledonian Company:—</p> <p>"TAIL-ROPING OF WAGGONS. — Waggons must not be tail-roped out of or into Sidings across another set of Rails—that is, when an Engine is on the Up Line of Rails a rope must not be attached to it and to Waggons in a Siding off the Down Line of Rails, nor when</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
HIGHLAND—cont. ...	moment when the tow-rope became taut, the nuts holding the loop broke, causing the tow-rope to fly forward and the hook at the end of it to strike Grant's right hand, with the result stated above.		<p>"an Engine is on the Down Line of Rails must a rope be attached to it and to Waggon in a Siding off the Up Line of Rails. In all cases where the Sidings will carry the Engine it must be taken into them to lift and deposit Waggon."</p> <p>J. J. H.</p>
LANCASHIRE AND YORKSHIRE.	<p>Date of Accident—6th July, 1901. Place at which Accident happened—Simonstone. Name of Person injured—Paul Parkinson. Age of Person injured—33. Capacity in which employed—Platelayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—1½ hours. Nature of Injury—Right shoulder fractured.</p> <p>Description of Accident—Parkinson and two other platelayers were engaged in clearing rubbish from the different sidings in the goods yard. On arrival of a goods train at about 7.30 a.m. three waggons were detached and run into the back or No. 4 siding, across which the platelayers were wheeling the sweepings for tipping. To avoid the waggons coming to a stand over the path one of the platelayers, James Stevenson, met the waggons near the entrance where he intended stopping them, but the goods porter, Albert Butterworth, who was assisting with the shunting, not knowing why Stevenson was trying to stop them, called to him to let them run clear of the crossing as other waggons had to be shunted into that and another adjoining siding. Unfortunately, the leading waggon came to a stand over the path, and whilst Parkinson and Stevenson were trying to push it clear some other waggons were run into the same siding, with the result that Parkinson's right shoulder was crushed between the buffers.</p>	<p>In this case the primary cause of the accident was Stevenson (who told Parkinson that the shunting in the No. 4 siding had been completed) misunderstanding the remarks of Porter Butterworth as to the number of shunts that were to be made. At the same time, although the siding is on a curve, I certainly think that before getting between the waggons, knowing shunting was going on, both Parkinson and Stevenson ought to have taken more precaution for their safety.</p> <p>A. F.</p>	
	<p>Date of Accident—11th July, 1901. Place at which Accident happened—Carriage Works Sidings, Newton Heath. Name of Person injured—William Cowap. Age of Person injured—38. Capacity in which employed—Engine Driver. Number of booked working hours per diem—11½. How long on duty at time of Accident—10½ hours. Nature of Injury—Left shoulder and arm bruised.</p> <p>Description of Accident—In the carriage works yard there are 23 sidings, lying east and west, leading to the painting shops. On the north and south sides of the sidings there is a running line which, owing to them running to a lower level, are locally known as No. 1 and No. 3 "Subways." Those lines run from the shunting neck at the west end of the yard to the erecting shops in a second yard further eastwards, i.e., at the rear of the painting shops. Engines and short empty stock trains are worked over the "subways," under the "single line train staff arrangements."</p> <p>On the date in question a light engine, No. 885, was run from the No. 3,</p>	<p>Owing to the position of a gateman's cabin, and to the "lead" from the No. 1 subway to the shunting neck being on a curve, the standing engine could not be seen more than 60 yards away, but even at that distance I am of opinion, that had the driver, R. Bennett, of the second engine been approaching the shunting neck (where he required to bring his own engine to a stand) with the necessary caution he might have prevented the mishap, and, having failed to do so he must be held responsible for the accident.</p>	<p>Although in this case I hold the engine driver, R. Bennett, responsible for the accident, I certainly think the present arrangements might be improved. In running from either subway, owing to sharp curves and fixed obstructions, there is not a good view of the shunting neck into which the engines from both lines require to run. I recommend that the Company should consider the advisability of either ordering that all engines running from the subways shall be brought to a stand at an arranged point, from which the shunter should go forward to ascertain that the shunting neck is clear, or that the outlet from the subways should be controlled by dwarf signals, which might be worked from the gateman's cabin.</p> <p>A. F.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>or South Subway, to the shunting neck, from which it was intended to be set back into the No. 4 siding, but just as the driver, W. Cowap, had reversed the engine, and was preparing to set back, it was run into by another engine, No. 858, which, with five vehicles attached, had been brought from the No. 1 subway, and by the impact Cowap was thrown heavily against the front of the fire box. At the time of my Inquiry Cowap was still off duty.</p>		
	<p>Date of Accident—15th July, 1901. Place at which Accident happened—Sowerby Bridge. Name of Person injured—Sykes Herbert Sutcliffe. Age of Person injured—20. Capacity in which employed—Extra Platelayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—9½ hours. Nature of Injury—Left shoulder injured.</p> <p>Description of Accident—Sutcliffe was one of several platelayers who, on the date in question, were employed at Sowerby Bridge for the purpose of painting the fixed point rods. At about 3.30 p.m. the men all stood clear of the main lines for two approaching trains to pass. On the arrival of the down train the engine was detached at the platform near to which the men were working and taken to a siding from which a second engine was brought to work the train forward. As the latter was setting back to the train, and just before reaching the point where Sutcliffe was standing, this man stepped foul of the line, and although immediately called to by the "look-out" man and others, before he could get clear he was knocked down.</p>	<p>It is difficult to understand why Sutcliffe should attempt to take up his work at the time the engine was so near to him, especially as all the other men were standing clear. He evidently was not paying sufficient attention to what was being done. His failing to see the engine approaching on his left side may be somewhat excused, for during my Inquiry I detected that something was wrong with his left eye, and after testing his sight he, although unwilling at first to do so, afterwards acknowledged that in that eye he was totally blind. Sutcliffe had been in the Company's service for seven months, but previous to my Inquiry none of the Company's men or officers had noticed or questioned his condition.</p> <p style="text-align: right;">A. F.</p>	
	<p>Date of Accident—23rd July, 1901. Place at which Accident happened—Accrington Locomotive Yard. Name of Person injured—Benjamin Turner. Age of Person injured—45. Capacity in which employed—Coalman. Number of booked working hours per diem—11. How long on duty at time of Accident—9 hours. Nature of Injury—Skull and ribs fractured.</p> <p>Description of Accident—On the date in question, at about 3 p.m., whilst Turner and another coalman, named R. Jackson, were engaged in coaling an engine, No. 400, from a waggon at the coaling stage, another engine, No. 1238, which had been standing a few yards in the rear, was, in some way unknown, moved forward, and on the latter colliding with the former, the door of the waggon on which they were working was forced from a properly arranged "rest," and the two men were thrown into the tender. Fortunately Jackson fell on the coal and was not injured, but Turner, falling head foremost on to the footplate, received injuries as stated above.</p>	<p>It is impossible to trace how the second engine was moved forward. Immediately after the accident both the engines referred to were examined, and it is stated that the brakes were then "hard on." Under such circumstances it would be impossible for the second engine to move without some interference. There had been three engines standing at the coaling stage a short distance apart, and just previous to the accident a fourth engine was taken to the rear of the three engines by assistant engine turner, Andrew Bell. He denies that the engine he was working collided with the one in front, but seeing that no one else can be traced as having been near the engines, although he may not have noticed it, I am of opinion that the fourth engine must have collided with the third, which, in turn, struck and forced the second to the first engine.</p> <p style="text-align: right;">A. F.</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE—cont.	<p>Date of Accident—15th August, 1901. Place at which Accident happened—Bamber Bridge. Name of Person injured—Walter Watson. Age of Person injured—30. Capacity in which employed—Goods Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—7½ hours. Nature of Injury—Right side injured. Off duty 19 days.</p> <p>Description of Accident—Watson was working with the 8.30 p.m. goods train from Fleetwood to Castleton, which arrived at Bamber Bridge at 3.15 on the morning in question. On arrival at the latter station the train consisted of 62 vehicles and brake van, 22 of these, which were next the engine, had to be detached there. For this purpose Inspector Thomas Bates uncoupled them from the remainder of the train while it was on the up main line, and directly he had done so the train commenced to run away down the falling gradient of 1 in 120. Watson remained in his brake van while the train ran through Brownlow Crossing, Preston Junction Station, and until it reached a point about 140 yards west thereof, when he attempted to jump off the van step while the train was travelling at about 20 miles an hour, with the result that he fell and injured his side as stated above. The train continued to run back, going through the catch points fixed 1,650 yards west from where the train started, and then onward until the brake van came in contact with the buffer stops fixed a few yards west of the catch points. The force of the collision was so great that the brake van and 9 other vehicles were derailed. Three of the latter were completely smashed up, and five badly and one slightly damaged, with the result that both main lines were blocked for some time.</p>	<p>The following rule extracted from the General Rule Book has an important bearing upon this case:—</p> <p>"181. When a goods train has been brought to a stand on any running line where the line is not level, and it is necessary for the engine to be detached from the train, the Guard must, before the engine is uncoupled, satisfy himself that the van-brakes have been put on securely, and as an additional precaution he must pin down a sufficient number of wagon brakes, and place one or more sprags in the wheels of the wagons next to the rear brake in the case of a rising gradient, and of the foremost waggons in the case of a falling gradient, so as to prevent the possibility of the waggons moving away. The number of sprags must be regulated by the steepness of the gradient, the number of waggons, their loads, and the state of the weather and rails."</p> <p>From the evidence given it is clear that the runaway signal was properly given, by Signalman J. Ainsworth, on duty at Brownlow Crossing, to Signalman J. Bannister, at Preston Junction Station, but owing to the cross-over road from the up to the down main line being east of his cabin he had not time to set the points for the latter line before the brake van was over them. The mishap was brought about owing to Guard Watson disregarding Rule 181, and neglecting to have a proper supply of sprags in his van, and to fill his sand box at Fleetwood. Inspector Bates also disregarded the rule quoted, and with the use of proper appliances and some alertness on the part of both these men the accident might have been prevented.</p> <p>Of the two men Inspector Bates appears to be most to blame, as he not only neglected to carry out the rules, but he uncoupled the train without satisfying himself that Guard Watson was on the alert or even in the van. At the same time the brake power on such a heavy falling gradient as the one in question does not appear to have been sufficient.</p>	<p>This Company have recently increased the weight of the loads of their goods and coal trains; therefore it is desirable for future safety that they should also increase the brake power at the rear of the trains, either by substituting much heavier brake vans or having two vans instead of one, as at present. Arrangements should also be made for a supply of sprags to be always kept on hand at and about the spot where this train started to run away. As similar cases have previously occurred at this place, it is surprising this has not been done, and Rule 181 enforced.</p> <p>J. J. H.</p>
	<p>Date of Accident—22nd August, 1901. Place at which Accident happened—Rochdale. Name of Person injured—John French. Age of Person injured—18½. Capacity in which employed—Labourer employed by Mr. Rimmer, Relaying</p>	<p>At the spot where this mishap happened engines travel in both directions, and although it appears to have been accidental it might have been prevented if acting Engine-driver A.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>Contractor. Nature of Injury—Left leg run over, since amputated. Still off duty at the time of inquiry.</p> <p>Description of Accident.—On the morning in question French and nine other men had been working at what is known as the Boundary Street Bridge, but having finished at that place at about 9.15 a.m. they were instructed to go to work about a quarter of a mile eastwards. While proceeding there French and two of the other men walked near together between the up main line and up loop line, the space between which varies from 8 to 10 feet, when a light engine travelling from the west to the east along the up loop line to the turntable struck French, knocking him down, with his left leg across the rail, which was so injured that it had to be amputated, with the result stated above.</p> <p>Date of Accident—25th August, 1901. Place at which Accident happened—Hapton. Name of Person injured—Kay Mills. Age of Person injured—28. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—8½ hours. Nature of Injury—Left hand severely cut.</p> <p>Description of Accident—Mills was working in charge of a goods train from Rosegrove to Baxenden. On reaching Hapton at 12.5 a.m. the engine was detached from the train and taken into the front siding for the purpose of attaching three waggons. Whilst Mills was walking in the 6-ft. space between the main line and front siding, and when in the act of giving a hand lamp signal to the engine driver, he stumbled over an exposed point rod, and falling sideways on to some awkwardly arranged trunking which, although fixed to cover a single signal wire, stands nearly 12 inches above the path, he received injuries which necessitated his being off duty 3 weeks.</p> <p>Date of Accident—26th August, 1901. Place at which Accident happened—Darwen Engine Shed. Name of Person injured—William Harrison. Age of Person injured—16. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—11½. How long on duty at time of Accident—11½ hours. Nature of Injury—Right hip bruised.</p> <p>Description of Accident—Harrison and several other cleaners were engaged at an engine (No. 537) then standing over the outside pit in the No. 4 road, immediately in front of the engine sheds. At about 5.25 a.m., just when finishing their work at the engine referred to, and when about to leave duty, they were all warned that the engine was going to be moved ahead to allow another engine (No. 396) to get over the pit. Harrison had been cleaning the front of the engine (nearest to the shed), and</p>	<p>Kear and acting Fireman F. Whitby had been keeping a good look-out ahead, and sounded their engine-whistles in accordance with Rule 153.</p> <p>J. J. H.</p> <p>The condition of the goods yard in question is, in my opinion, very unsatisfactory. Although a shunting engine is engaged there for from two to three hours nightly, besides several trains stopping to attach and detach vehicles, every point rod or signal wire which is not exposed is covered with trunking that forms a most dangerous obstruction, and to make matters even worse there is not a single fixed lamp provided. I am of opinion that in this case the accident, which might have proved far more serious, was due to the unnecessary dangerous obstruction referred to.</p> <p>As the two engines were being moved at the same time and the cleaners had all been warned to stand clear, there was no reason for the driver of the second engine, G. Edmondson, to expect any of them would attempt to take up their positions before both engines had been brought to a stand, neither should they have done so. Harrison had only been in the service a few weeks, but I certainly think that in this case the accident—which might have been far more serious—was due to his "own want of caution."</p> <p>A. F.</p>	<p>For future safety I recommend that the dangerous trunking should be removed, and that all point rods and signal wires should be protected by side timbers similar to what has been done with such good results at stations on the Manchester to Bolton and Blackburn section of this line; besides which at suitable points good lamps should be provided.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>being anxious to finish cleaning a part of the buffer beam he followed the engine, and without noticing that the second engine was following closely in the rear he stood immediately in front of the rear buffer of the leading engine, with the result that, although the second engine would not have touched the buffer at which he was engaged, he was crushed between them.</p> <p>Date of Accident—7th September, 1901. Place at which Accident happened—Wood's Siding, near Brinscall. Name of Person injured—James Barlow. Age of Person injured—32. Capacity in which employed—Ballastman. Number of booked working hours per diem—11. How long on duty at time of Accident—5 hours. Nature of Injury—Left ankle injured. Off duty 1 month.</p> <p>Description of Accident—On the morning in question a gang of 21 men, including Barlow, in charge of Foreman Thomas Martindale were engaged in loading 10 waggons with ashes in Wood's siding, about half a mile west of Brinscall. After Barlow and Ballastmen B. Bromley and J. Adamson had nearly filled the waggon which they were loading, the former went on to the top of the ashes to spread them. While he was doing so the vehicles were moved forward and he overbalanced himself and fell to the ground, with the result stated above.</p> <p>Date of Accident—19th September, 1901. Place at which Accident happened—Bolton. Name of Person injured—William Henry Fryer. Age of Person injured—25. Capacity in which employed—Goods Porter. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—8½ hours. Nature of Injury—Left knee injured. Off duty 8 days.</p> <p>Description of Accident.—At 8.30 on the night in question it was necessary for Fryer to take the numbers</p>	<p>This accident happened on a Saturday, and at the time Barlow thought that if he bathed his ankle and rested it until the following Monday he would on that day be able to return to duty, and consequently he did not report the matter to anyone until he found that he was unable to resume work on that day. No one except the two men working with him saw the mishap, and the driver and fireman were not aware of it until the 31st October. Under these circumstances none of the witnesses except Barlow, Bromley, and Adamson could give any evidence respecting the mishap. However, these men all stated that when the waggon was moved they heard no warning from either Foreman Martindale or Ballast-guard F. Hindley, nor did they hear the engine whistle sounded, although it would appear to have been sounded. Barlow admits that he was to blame for not reporting the mishap when it happened, and also that on every previous occasion he had been properly warned before the vehicles on which he was working were moved. He further states that he regularly wore clogs, and had one foot on the edge of the waggon side while spreading the ashes, and might have fallen off the vehicle if it had not been moved, as he had previously done so when the waggons were at rest. In this case the waggon was steadily moved forward, and the mishap appears to have been accidental.</p> <p>J. J. H.</p> <p>The hole in question had been made near to the warehouse wall to permit of some pipes being laid in connection with an electric cable. This work had been done under the supervision of James Hindley, Foreman, Hydraulic Department, four days previous to the accident; but instead of Hindley arranging for the hole to be properly pro-</p>	<p>For future safety the Company should issue instructions to those in charge of excavating work that when it is necessary for them to leave the work before it is completed, they must see that it is properly protected so as to prevent men who have to pass such places from falling into holes or over obstructions left lying about.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>LANCASHIRE AND YORKSHIRE—cont.</b>	and tares of some waggons standing in the new warehouse, for which purpose he had to walk between the vehicles and warehouse wall. On approaching the north end of the warehouse where the space between the running line and warehouse wall is 3 feet 11 inches, he stepped into a hole about 18 inches long and 6 inches broad, and fell with his left knee on the paving stones, with the result stated above.	tested, he placed a plank 2 feet 6 inches by 6 inches by 3 inches with the ends on the paving stones loosely over the hole. During the period since the plank was placed in position it was moved probably by the capstan rope coming in contact with it, with the result that the hole was exposed. The responsibility for this mishap rests with Foreman J. Hindley for neglecting to have the hole properly protected, and for placing a loose plank over it which formed a dangerous obstruction.	
<b>LONDON AND NORTH WESTERN.</b>	<p>Date of Accident — 1st July, 1901. Place at which Accident happened — Ettingshall Road. Name of Person injured — Samuel Morris. Age of Person injured—51. Capacity in which employed — Horse Shunter. Number of booked working hours per diem — Irregular. How long on duty at time of Accident—16 hours. Nature of Injury — Chest and right arm injured. Off duty 3 weeks.</p> <p>Description of Accident — In this case three covered goods vans were required to be moved from near the centre of the goods shed to the south end of it. The lines through the shed are on a falling gradient, and after Morris, Goods Porter E. Squires, and Checker A. Cartwright had started the vehicles by pushing them with their hands, Morris walked backwards in front of the leading vehicle for the purpose of applying the brake to bring it to rest when it was in position, and when attempting to put down the brake lever he was caught between the side of the vehicle and the principal at the end of the shed, where the space between them was only 12 inches, with the result stated above.</p>	<p>As fully admitted by Morris the accident was due to momentary forgetfulness on his part. At the same time he had been on duty for 16 hours (with two hours off for meals) when the mishap happened. These hours are to my mind too long, and would prevent him being so free in his movements as he otherwise would have been.</p> <p>The lighting at the place appears satisfactory.</p> <p>J. J. H.</p>	
	<p>Date of Accident—9th July, 1901. Place at which Accident happened — Widnes. Name of Person injured—Thomas W. Moreland. Age of Person injured—30. Capacity in which employed — Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—9½ hours. Nature of Injury—Left thumb injured. Still off duty when inquiry was held.</p> <p>Description of Accident—A waggon standing in the "canal bank siding" was required about five yards forward to load at No. 6 crane. To get it there one end of a tow rope was attached to the axleguard of the waggon, and the other end to the engine which travelled along the shunting neck (the adjoining line). When the vehicle had been placed in position Moreland attempted to release the tow rope from the vehicle just at the moment that it came in contact with other vehicles at rest, which caused it to rebound and</p>	<p>The mishap appears to have been accidental. At the same time there does not appear to have been any necessity for tow roping in this case, although Moreland was only carrying out the too general practice at this place.</p>	<p>The engines can be taken into the siding in question for the purpose of placing the waggons in position at No. 6 crane, and by this means the work can be performed quite as quickly and with less risk of injury to them; and the Company should take steps for this being done with a view to future safety, as tow roping is such a dangerous operation that it should not be permitted when it can be avoided.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations
LONDON AND NORTH WESTERN— <i>cont.</i>	<p>the tow rope to become tight, with the result that his thumb was caught between the axleguard of the waggon and the hook of the tow rope, and injured as stated above.</p> <p>Date of Accident—10th July, 1901. Place at which Accident happened—Nuneaton. Name of Person injured—Charles E. Thornton. Age of Person injured—22. Capacity in which employed—Goods Porter. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—5 hours. Nature of Injury—Left hip and groin injured. Still off duty at the time of the inquiry.</p> <p>Description of Accident—At about 11 on the morning in question Thornton was inside a waggon standing in the Stanley Siding, engaged loading empty casks and crates from a dray to the waggon, when the latter vehicle was moved from 15 to 20 yards by three other vehicles which were shunted into the same siding, causing him to be thrown out of the vehicle on to the ground, with the result stated above.</p> <p>Date of Accident—12th July, 1901. Place at which Accident happened—St. Helens Junction. Name of Person injured—Josiah Parr. Age of Person injured—23. Capacity in which employed—Porter. Number of booked working hours per diem—10½. How long on duty at time of Accident—10 hours. Nature of Injury—Face injured. Off duty 3 weeks.</p> <p>Description of Accident—On the night in question, the 11.20 p.m. passenger train from St. Helens to St. Helens Junction had three passenger brake-vans (which were in the rear of the train) to detach at the latter station. These had to be attached to a special passenger train from Liverpool. For the short time that the vehicles had to remain, it was decided to place them upon the down main line from St. Helens, and while they were being set back there, Parr rode on the footboard step of the leading vehicle, and apparently while leaning forward for signalling purposes he caught his face against a signal stay post wire, with the result stated above.</p> <p>Date of Accident—15th July, 1901. Place at which Accident happened—Leamington. Name of Person injured—Harry Scruby. Age of Person injured—21. Capacity in which employed—Porter. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—2½ hours. Nature of Injury—Face and left side injured. Off duty three weeks.</p> <p>Description of Accident—On the morning in question, Foreman William Trunkfield, Porter R. Cox, and Scruby were engaged shunting passenger vehicles. The engine was first taken into the coal yard</p>	<p>The responsibility for this mishap rests entirely with Shunter James E. White, who frankly admits that he knew that Thornton was working at the vehicle, but neglected to warn him in accordance with Rule 112(a), and also disregarded Rule 184(a).</p> <p>The space between the lines at the spot where this mishap happened is 18 feet 10 inches, and the signal stay wire Parr came in contact with is 4 feet 7 inches from the running line upon which the vehicles were being shunted. Consequently, he must have been leaning further over from the side of the vehicle than there was any necessity for, to be caught in the manner described. The place was well lighted, and if Parr had been keeping a good look-out ahead he could have seen the signal stay wire in time to have prevented the mishap.</p> <p>The responsibility for this mishap rests with Foreman William Trunkfield, who was in charge of the shunting operations. He frankly admits that he ought to have satisfied himself that the engine was coupled to the vehicles before signalling the driver to set them back into the down bay platform. Had he done so the accident would not have occurred.</p>	<p>This siding is constantly used for loading and unloading traffic, and although it is not often used for marshalling purposes, as in this case, arrangements might be made with advantage for such shunting to be always done in the proper marshalling sidings.</p> <p>J. J. H.</p> <p>J. J. H.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH WESTERN—cont.	<p>at the up side of the main lines and there attached to four vehicles which were placed on the down main line, after which the engine was taken into one of the down sidings and attached to five vehicles, the three leading ones being shunted against the four mentioned, and the other two which Porter Cox accompanied shunted back into the siding. The engine was then taken on to the down main line for the purpose of placing the seven vehicles standing there into the down bay platform, and as they were joined together Scruby went in between the third and fourth vehicles for coupling purposes. Afterwards Trunkfield signalled the driver back without satisfying himself that the engine was coupled to the vehicles, with the result that when Scruby saw that the engine was not coupled he rushed forward to the centre vehicle for the purpose of applying the brake to prevent them coming into violent contact with the buffer stops, but before he had time to do so they came in contact with them, and he was injured as stated above.</p> <p>Date of Accident—22nd July, 1901. Place at which Accident happened—Exchange Station, Manchester. Name of Person injured—John Williams. Age of Person injured—23. Capacity in which employed—Platelayer. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours. Nature of Injury—Head, both knees, right arm, left shoulder, and eyes injured. Still off duty on November 6th.</p> <p>Description of Accident—At about 2.5 p.m. on the day in question it was necessary for Williams to stand in the four-foot way of the down slow main line, about 250 yards west of Exchange Station, in order to screw up some fish-plate bolts. While doing so he was struck and knocked down by the engine of the 2.2 p.m. passenger train from Manchester (Exchange) to Patricroft, the engine and the whole of the train passing over him, with the result stated above.</p>	<p>Williams was working under Ganger Robert Gardner, whose gang usually consists of six men, including himself, but on this date, for various reasons, Gardner had only platelayers Williams and Rolfe working with him. They had all been working together at a new diamond crossing which had been put in on the previous day, but at the time of the mishap Williams was working alone; Gardner and Rolfe had crossed over to the south side of the down fast main lines to obtain some tools which were lying there. However, Williams thought that Gardner was still working with him and keeping a proper look-out for approaching trains, and as another train was passing on the main up slow (the adjoining) line he did not hear the approaching engine by which he was knocked down.</p> <p>Ganger R. Gardner fully admits that he had received written instructions that in all cases he must appoint a look-out man for the protection of his men while at work, but in this case he disregarded these instructions owing to being short-handed, and being anxious to complete the work that night. However, this did not excuse him for neglecting to keep a good look-out himself for approaching trains, and seeing that he failed to take either of these precautions for the safety of Williams the responsibility for the mishap rests with him.</p> <p>J. J. H.</p>	

**J. J. H.**



## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH WESTERN—cont.	<p>purpose of applying the brake to bring it to rest on the turntable. He then lifted the turntable catch, and remained near it, to put it down again after the vehicle had been turned in position. While this was being done George, who had attached the horse chain to the draw bar hook, retained hold of it to prevent it getting under the buffer, and when the horses started suddenly his left thumb was caught between the horse chain and waggon buffer, with the result stated above.</p>		
	<p>Date of Accident—12th September, 1901. Place at which Accident happened—Broad Street, London. Name of Person injured—Henry Anthony. Age of Person injured—36. Capacity in which employed—Shunter. Number of booked working hours per diem—12, with 2 hours off for meals. How long on duty at time of Accident—12 hours. Nature of Injury—Right arm injured. Off duty 3½ weeks.</p> <p>Description of Accident—On the morning in question a train, consisting of 28 vehicles, arrived from Camden at about 6.50. On reaching the cross-over road points leading from No. 3 to No. 4 arrival lines, the engine was uncoupled and taken ahead clear of the blades of the points, after which the points were set for No. 3 line, and one end of a tail rope was attached to the centre bar hook of the engine, and the other end to the loop fixed on the side of the leading vehicle. The engine was then set ahead to travel along No. 4 line, while the vehicles travelled along No. 3 (the adjoining) line until they were drawn far enough forward for the engine to be taken to the opposite end of the train. While the engine was travelling through the cross-over road it was necessary for Anthony to hold the tail rope to prevent it getting underneath the headstock of the vehicle, and while doing so, directly the full strain was put upon the rope to move the vehicles, the loop fixed on the side of the leading vehicle to which the rope was attached came off, owing to the bolts which kept the loop in position being pulled out, with the result that the tail rope flew forward, and the hook fixed at the end of it struck Anthony's right arm, so injuring it as to cause him to be off duty for 3½ weeks.</p>	<p>The mishap was chiefly due to the men having been permitted to perform the tail roping operations in the same dangerous manner as that in which Anthony was performing them at the time the accident happened, for which there was no necessity, as the engine could have been first taken through the cross-over road, and then set back opposite to the leading vehicle before the tail rope had been attached.</p> <p>If this had been done there would have been no necessity for Anthony to have held the tail rope. The men should have been forbidden to tail rope such a large number of waggons at one time, as they have been daily in the habit of doing, and it is not surprising that the loop was pulled off when the tail rope was drawing 28 vehicles.</p>	<p>For future safety it is very desirable that the Company should make arrangements so that the engines can be taken round their trains, with a view to dispensing with tail roping, which, at present, is very heavy at this busy place.</p> <p>If these improvements are not made, then the Company should issue instructions to all concerned as to how the tail roping has to be performed, and also limit the number of vehicles to be tail roped at one time, as the loops fixed on the sides of the waggons are not of sufficient strength to bear the strain of 28 vehicles, the number being tail roped in this case.</p> <p>Trains consisting of 40 loaded waggons have, in some cases, to be dealt with in the same manner, and also all other trains exceeding 13 vehicles.</p> <p>J. J. H.</p>
	<p>Date of Accident—12th September, 1901. Place at which Accident happened—Tipton. Name of Person injured—George Bartley. Age of Person injured—24. Capacity in which employed—Shunter. Number of booked working hours per diem—11. How long on duty at time of Accident—8½ hours. Nature of Injury—Left knee injured. Off duty 2 weeks.</p> <p>Description of Accident—On the afternoon in question it was necessary to move seven waggons,</p>	<p>The tow roping is very heavy at this place, principally owing to there being insufficient accommodation for the number of waggons which have to be dealt with. As a proof of this, if the sidings had not all been occupied in this case, there would have been no necessity to have used the tow rope, as there is a loop between the shed road and the</p>	<p>For future safety it is desirable that the pavement should be made level, as the safety of the men is of far greater importance than any advantage to the horses.</p> <p>Further, as the tow roping is heavy, arrangements should be made, if possible, to provide additional siding accommodation, with a view to lessening the necessity for tow roping,</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN— <i>cont.</i>	<p>loaded with timber, from the south end of the shed road up to a crane, fixed at a distance of 25 yards from the entrance to the goods shed. To get them there, owing to the sidings being occupied by waggons, it was necessary to use the tow rope, one end of which was attached to the loop fixed on the side of the leading waggon, and the other end to the centre bar hook of the engine, which travelled along the middle road, the waggons travelling along the shed road. When the latter were about to strike two waggons standing near the entrance to the shed, Bartley released the tow rope, and threw that end of it on to the ground. The next moment the leading one of the seven waggons referred to struck the two at rest, driving them forward, and with a view to preventing their striking others at rest inside the goods shed, Bartley rushed forward to apply the brakes, when he caught his left foot against one of the paving stones, which is fixed higher than the others, and fell with his left knee on the hook of the tow rope, with the result stated above.</p> <p>Date of Accident—19th September, 1901. Place at which Accident happened—Crewe. Name of Person injured—John Hillier. Age of Person injured—47. Capacity in which employed—Brakesman. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—One finger of left hand injured. Off duty 7 weeks.</p> <p>Description of Accident—At about 9.45 a.m. on the day in question an engine with some waggons attached in front was taken into No. 27 siding at the north end for the purpose of attaching two other waggons standing there. While this was being done the engine stood foul of No. 29 siding, and when in that position some waggons were pushed from the south end of the latter siding until the leading vehicle rested against the side of the engine, consequently it could not either be taken ahead or set back until the vehicles were moved. For this purpose a shunting engine was taken into No. 30 siding, and one end of a tow-rope was attached to the centre bar hook of that engine and the other end to the axle-guard of the leading waggon, and while Hillier had hold of the hook of the tow-rope to prevent it from slipping as it became taut his finger was caught between the axle-guard of the waggon and the hook of the tow-rope, with the result stated above.</p>	<p>middle road by which the engine could have been taken round the seven waggons, in order to place them where they were required.</p> <p>At and about the spot where this accident happened the path, which it was necessary for Bartley to take, is paved with dressed stones, which are about 9 inches long and 4 inches broad. At about every 18 inches a row of these stones is raised from 2 to 3 inches above the level of the other stones, for the purpose of preventing the horses from slipping during horse-shunting operations. The raising of the stones in question is, no doubt, an advantage to the horses, but they form a dangerous obstruction to the men, and were the primary cause of this accident.</p> <p>The primary cause of the mishap was the fact of the waggons in No. 29 siding having been pushed from the south end until the leading vehicle rested against the engine standing foul at the north end, but it has not been ascertained who was responsible for this.</p> <p>There is telephonic communication between both ends of these sidings, but in this case it was of no use to telephone from the north to the south end to ask the men working there to take an engine into No. 29 siding to draw the vehicles southward to liberate the engine against which the leading waggon rested, as it was impossible for this to be done owing to some vehicles near the centre of the siding being without centre bars, consequently it was necessary to use a tow-rope to draw the vehicles back clear.</p> <p>It appears from the evidence given that tow-roping is exceptional at this place, but it would not be necessary if proper care were exercised by all concerned when pushing vehicles into the sidings.</p>	<p>but if this cannot be done steps should be taken for two men to be always in attendance when this dangerous operation is being performed.</p> <p>J. J. H.</p> <p>For future safety it is desirable that instructions should be issued to all concerned that when any of the sidings contain a large number of waggons, as in this case, before they are pushed back the person in charge must see that they are not likely to be pushed foul of other sidings.</p> <p>J. J. H.</p>
LONDON AND SOUTH-WESTERN.	<p>Date of Accident—3rd July, 1901. Place at which Accident happened—Between Vauxhall and Queen's Road. Name of Person injured—Albert May. Age of Person injured—40. Capacity in which employed—Telegraph Outdoor Foreman. Number of booked</p>	<p>There is a space of 5 ft. 3 ins. between the outside rail and the parapet wall, so that there was sufficient room for both Hawkes and May to stand in safety. I am therefore of opinion that the accident,</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND SOUTH-WESTERN—cont.	<p>working hours per diem—11½. How long on duty at time of Accident—5½ hours. Nature of Injury—Right arm fractured.</p> <p>Description of Accident—On the morning in question, in company with Telegraph-Inspector Walter Hawkes, May walked along the line from Clapham Junction towards Vauxhall for the purpose of examining the then existing telegraph connections and arranging for others necessary in consequence of the widening of the lines. Whilst standing on the off or north side of a new line (which during extensive alterations was then being used for the down main line traffic) in conversation respecting certain alterations which had to be made to an over-head cable attached to the Wandsworth Road Bridge down starting signal, May stood foul of the line referred to, and failing to notice an approaching train he was struck by the buffer beam of the engine, with the result stated above.</p>	<p>which might have been far more serious, was due to want of caution, for which both are equally to blame.</p> <p>A. F.</p>	
	<p>Date of Accident—18th July, 1901. Place at which Accident happened—Halwill Junction. Name of Person injured—Ernest Bromwell. Age of Person injured—18. Capacity in which employed—Porter. Number of booked working hours per diem—12, with two hours off for meals. How long on duty at time of Accident—40 minutes. Nature of Injury—Left leg injured. Off duty one day.</p> <p>Description of Accident—On the morning in question it was necessary to tow-rope four vehicles into what is known as the "Slaughter House Siding." For this purpose one end of the tow-rope was attached to the loop fixed on the side of the leading vehicle and the other end was attached to the centre bar hook of a waggon behind the engine. The moment the tow-rope became taut the loop broke owing to its being defective, with the result that the tow-rope struck Bromwell's left leg, slightly injuring it.</p>	<p>The loop fixed on the side of the waggon was defective, but the defect was not visible, and consequently the mishap was accidental.</p>	<p>Tow-ropeing is so dangerous that it is to be hoped that the Company will arrange for it to be dispensed with, wherever possible, although it might be somewhat difficult to do so at this station owing to the line being single.</p> <p>J. J. H.</p>
	<p>Date of Accident—21st August, 1901. Place at which Accident happened—Woking. Name of Person injured—James Coomber. Age of Person injured—40. Capacity in which employed—Bricklayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—4½ hours. Nature of Injury—Head and right shoulder bruised.</p> <p>Description of Accident—On the date in question Coomber and several other men were engaged in connection with certain alterations at Woking East signal cabin. The cabin is about 80 yards east of the platforms, and is situated on the upper north side of the lines, and stands about five feet from the up bay platform line. At about 10.30 a.m. whilst Coomber was assisting at the front of the cabin and was lifting a bucket of water which had been standing near to the rail he got foul of the bay line.</p>	<p>At the time of the accident Coomber states that it was necessary for him to stand with his back towards the platform from which direction the engine approached.</p> <p>The traffic is fairly heavy, and owing to the men having to work so near to the bay line I certainly think a look-out man ought to have been appointed.</p> <p>The foreman, H. Towers, fully admits now that he should have provided some protection for the safety of his men, and, although he promises to do so in the future, yet seeing that he neglected to do so on this occasion, I must hold him responsible for the accident.</p> <p>A. F.</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND SOUTH-WESTERN—cont.	and failing to notice that a shunting engine was then approaching in the rear he was struck by it and knocked down. As the engine was moving up the bay line the driver sounded the whistle as a warning, and at that time all the men were clear.		
LONDONDERRY AND LOUGH SWILLY.	<p>Date of Accident—10th July, 1901. Place at which Accident happened—Between Clonmany and Dumfries. Name of Person injured—William Doherty. Age of Person injured—22. Capacity in which employed—Fireman. Number of booked working hours per diem—16. How long on duty at time of Accident—8½ hours. Nature of Injury—Head and right shoulder injured. Still off duty when inquiry was made.</p> <p>Description of Accident—Doherty was working with the 12.50 p.m. up passenger train from Cardonagh to Londonderry, and while the engine was running between Clonmany and Dumfries, and when the engine was about one mile south of the former station, he by some means fell off the footplate, with the result stated above.</p>	<p>The evidence is conflicting as to the cause of Doherty falling off the engine. He informed Guard Thomas Baird directly after the accident that while firing he overbalanced himself and fell off the footplate, but at my inquiry he stated that he was thrown off the footplate owing to the bad condition of the road. However, there is no proof of this, and I am of the opinion that his first statement, that he overbalanced himself and fell off while firing, is the correct one, and that the mishap was accidental. At the same time he was inexperienced with the work, having only been two weeks in the service, and a fireman for only six days. Further, he had worked for 16 hours on the two preceding days, and after working such excessive hours he would not be likely to be so alert or free in his movements as he otherwise would have been.</p> <p>J. J. H.</p>	
LONDON, BRIGHTON, AND SOUTH COAST.	<p>Date of Accident—12th July, 1901. Place at which Accident happened—London Bridge. Name of Person injured—Alfred Boswell. Age of Person injured—30. Capacity in which employed—Fireman. Number of booked working hours per diem—8½. How long on duty at time of Accident—75 minutes. Nature of Injury—Abdomen and ribs injured. Off duty one month.</p> <p>Description of Accident—On the day in question Boswell booked on duty at New Cross at 3.45 p.m., to work with the 5.5 p.m. passenger train from London Bridge to Eastbourne. From New Cross to London Bridge the engine he was working with (No. 173) was coupled to engine No. 309. On arrival at the latter station the engines were turned into No. 5 platform, from which the 5.5 p.m. train started. Boswell uncoupled the engines, after which his driver, Robert Graham, set their engine back towards the train, but brought it to rest some distance from it. when he and Boswell commenced oiling, the latter going underneath the engine while Graham was on the outside framing. During the time they were in this position. Engine Driver Charles Winslet, in charge of engine No. 309, set it back without any warning against No. 173, with the result stated above.</p>	<p>The responsibility for this mishap rests chiefly with Engine Driver Charles Winslet, who frankly admits that when instructed to set his engine back clear of the spare road he neglected to look in the direction of engine No. 173. Had he done so he could not have failed to have seen it in time to have prevented the mishap. At the same time Engine Driver Robert Graham is not free from blame. He was fully aware that Boswell was underneath the engine, and therefore he ought to have taken proper precautions for Boswell's safety, especially as Graham had neglected to oil the engine before leaving the shed at New Cross.</p> <p>J. J. H.</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON, BRIGHTON, AND SOUTH COAST —cont.	<p>Date of Accident—17th July, 1901. Place at which Accident happened—Victoria Station. Name of Person killed—Walter Dicker. Age of Person killed—22. Capacity in which employed—Platform Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—6½ hours.</p> <p>Description of Accident—On the date in question, at about 2.15 p.m., the deceased was instructed by the Head Porter, Chas. Jones, to clean the couplings of eight carriages which were standing at the buffer stop ends of the Nos. 3, 4, and 5 platform lines. After cleaning the couplings of two carriages standing in No. 5 line, and four standing in No. 4 line, Dicker went to the two others in the No. 3 line, but whilst he was engaged at the rear coupling of the carriage next and close up to the buffer stop, other carriages were pushed back along the same line, and he was crushed between the end of the carriage and buffer stop, and so injured that he died on the same night.</p>	<p>On page 157 of the Company's appendix to the time-table book, there are special instructions which read:—</p> <p>"As a protection to the men engaged in cleaning carriages a red flag by day and a red light by night must be placed in the direction from which anything would approach."</p> <p>besides which other necessary and important instructions bearing on the same subject are also given on page 173.</p> <p>The deceased had only been stationed at Victoria for about a month previous to the accident, and not having had time to gain a good knowledge of the traffic, I am of opinion that he ought not to have been sent to do such work at such a busy station. At the same time had the above instructions been complied with the accident might have been avoided, whereas the shunter responsible for the moving of the vehicles had no knowledge of Dicker's position.</p> <p>It was stated at my inquiry that the "instructions" were not put into force at Victoria until after the mishap in question, which is very unsatisfactory.</p>	<p>For future safety I recommend that if it is absolutely necessary to clean the couplings of vehicles standing in the station, some person or persons should be appointed specially to perform that work, and that in all cases the instructions referred to should be strictly adhered to.</p> <p>A. F.</p>
	<p>Date of Accident—25th July, 1901. Place at which Accident happened—Gatwick. Name of Person injured—Herbert Green. Age of Person injured—39. Capacity in which employed—Engine Driver. Number of booked working hours per diem—10½. How long on duty at time of Accident—7 hours. Nature of Injury—Right eye injured. Still off duty at the time of inquiry.</p> <p>Description of Accident—Green was working with the 6.43 p.m. down goods train from Norwood Junction to Newhaven. At about 7.40 p.m., when approaching Gatwick Station, he left the footplate and clambered over the coals to the rear of the tender with the ash-pan rake to ascertain the quantity of water in the tank. After pulling the rake out of the tank, and while examining one end of it, the other end came in contact with the footbridge at the north end of Gatwick Station, and rebounding struck him on the right eye, with the result stated above.</p>	<p>In this case there was no water at Hayward's Heath, the first station the train Green was working with was booked to stop at, and as he was doubtful whether he had sufficient to take the train forward to Lewes, he went to ascertain this in the manner described, so as to decide whether he should stop at Three Bridges, about two and a half miles south of Gatwick, to get a supply. He was well aware of the position of the footbridge, but he forgot about it in his anxiety about the water and his desire not to stop at Three Bridges if he could possibly avoid it to get a supply, as the train was not booked there, and by stopping it he would cause it to be delayed.</p> <p>If the engine tender had been fitted with a gauge glass by the side of the tank, similar to those in use on some of the other Companies' lines, there would not have been any necessity for Green to have gone to the back of the tender to ascertain what water was in the tank. It is clear from the evidence that the enginemen on this line have been in the habit</p>	<p>For future safety the Company should be asked to issue stringent instructions forbidding their enginemen to leave the footplates of their engines in motion. Some of the other Companies have done so with good results. In addition they should consider the advisability of fitting their tenders with gauge glasses similar to those in use on some of the other Companies' lines, by which means the enginemen can see from the footplate at a glance the quantity of water in the tank.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON, BRIGHTON, AND SOUTH COAST — <i>cont.</i>		of leaving the footplate of their engines in motion for various purposes, and the mishap was chiefly due to the men having been permitted to drift into such a dangerous mode of working. At the same time Green acted contrary to the spirit of Rule 24 (a), and did not exercise the care he might have done.	
MIDLAND ... ..	<p>Date of Accident—9th July, 1901. Place at which Accident happened—Leicester Goods Yard. Name of Person injured—William Edward Sharpe. Age of Person injured—33. Capacity in which employed—Goods Guard, temporarily acting as Goods Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—10 hours. Nature of Injury—Left hand crushed.</p> <p>Description of Accident—On the date in question Sharpe was acting as a goods porter, and from 3.30 p.m. he and another man were engaged in unloading short pit timbers from waggons standing in the "timber" siding, which runs alongside the goods shed. At about 4 p.m., after having emptied one waggon, they moved the dray on to which they were loading the timber to the next, and to enable him to get on the top of the waggon Sharpe placed his hand on one of the buffers. Just at that moment, and without any warning having been given, the waggons were pressed together by a shunting engine, and his left hand was crushed.</p>	<p>Richard Preston, the shunter who was responsible for moving the waggons, states:—"At about 4 p.m. "it was necessary for me "to take five waggons "from the entrance end "of the 'timber' siding. "Before allowing the engine to close up to the "waggons I looked to see "if any one was working "in the siding, and not "being able to see any "one, although I could "see a dray standing near "one of the waggons "further down the siding, "I signalled to the engine-driver to set back the "engine for coupling "purposes. Immediately "afterwards I learned of "the accident to Sharpe. "I fully admit that I did "not walk along the "siding to see that all "was clear, according to "Rule 112A and the "Company's 'special instructions,' as I should "have done."</p> <p>Having neglected to comply with the Company's instructions Shunter R. Preston must be held responsible for the mishap.</p> <p>A. F.</p>	
	<p>Date of Accident—27th July, 1901. Place at which Accident happened—Near Harpenden. Name of Person killed—Thomas Edward Hargreaves. Age of Person killed—38. Capacity in which employed—Engine Driver. Number of booked working hours per diem—10. How long on duty at time of Accident—6½ hours.</p> <p>Description of Accident—Hargreaves and his mate, W. G. Howard, booked on duty at Childs Hill at 4 a.m. for relieving purposes, and at 8.25 a.m. they went as passengers to Luton, where at 10 a.m. they relieved the driver and fireman and took charge of engine No. 446, which was working an up Nottingham to London coal train. After filling the tank with water and seeing that all was right they left Luton at about 10.30 a.m. The train, which was run on the goods or slow line, was stopped at Harpenden by signal, from which point, owing to another train being in the section ahead, it was sent forward at about 11.25 a.m. under the "warning" arrangement.</p>	<p>There is no direct proof as to why Hargreaves left the footplate: in fact his mate had not noticed that he had done so until when turning round whilst working the injector he saw him standing on the coal, as if making his way towards the back of the tender. The engine was then so close to the over-bridge that even whilst Howard was calling "look out for the bridge," he was struck by it. There was nothing at the back of the tender except a box containing heavy tools (which are never used whilst running) and the fireirons. The engine was then at the foot of a heavy gradient, and I am inclined to think that the deceased must have gone back for the purpose of getting one of the fire-irons to stir up the fire, but</p>	<p>I recommend that whenever such circulars as the one referred to are issued every person concerned should be supplied with a copy, and that some proof of delivery should be kept, and also that in all cases the tools which may be necessary on a journey, such as fire-irons, should be kept near to and obtainable from the footplate.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i> ...	<p>After having run a distance of about three quarters of a mile. Hargreaves left the footplate and went towards the back of the tender, but whilst doing so his head struck against an overhead bridge, causing injuries from which he died the same night.</p>	<p>whatever may have been his intentions there was no reason why with the necessary care, he should not have seen and avoided the overbridge. I am therefore of opinion that the accident was due to want of caution.</p> <p>The Company have issued special instructions as follows:—</p> <p>"MIDLAND RAILWAY.</p> <p>"<i>Notice to Drivers and Firemen.—Precautions to be taken to prevent Injury by coming in Contact with Over-bridges, &amp;c.</i></p> <p>"I regret to find that serious accidents have recently occurred to Drivers and Firemen owing to their inadvertently standing up when going on to the top of the Tenders and coming in contact with over-bridges, &amp;c.</p> <p>"Drivers and Firemen should avoid going to the top of the Tenders while their Engines are in motion, unless it is absolutely necessary, and when it is necessary they should exercise great care and stoop sufficiently to clear the over-bridges, signal girders, and other structures under which the Engines may have to pass.</p> <p>"Rule 24A of the Company's Rule Book warns all servants of the Company not to expose themselves to danger.</p> <p>"Drivers and Firemen are hereby requested to take such precautions at all times as will ensure them from risk of injury.</p> <p>"SAMUEL W. JOHNSON. "Locomotive Superintendent. "Locomotive Office, "Derby, "November 1st, 1897.</p> <p>The fireman states that he cannot remember ever receiving or seeing a copy of this circular, and I think it is very questionable if even Hargreaves had done so; at the same time I am strongly of opinion that there should be no necessity for engine-men having to go to the back of the tenders whilst the engines are in motion. It was stated in evidence that in this case, owing to the smallness of the tender, that before leaving Nottingham the coal had to be so stacked as to prevent the fire-irons being kept near the footplate. This to my mind might and should be avoided.</p>	
	<p>Date of Accident—4th September, 1901. Place at which Accident happened—Staveley. Name of Person injured—William Richard James. Age of Person injured—42. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—</p>	<p>The marshalling sidings in question are fairly lighted. There is a very heavy coal traffic passing through them, so that it is impossible at all times to keep them entirely free from obstructions similar to that over which James</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND—cont. ...	<p>3½ hours. Nature of Injury—Left knee and left hand injured.</p> <p>Description of Accident—After having worked a coal train from Hasland Avenue Sidings to Staveley, it was necessary for him to shunt the waggons for marshalling purposes into the different south sidings. At about 1 a.m., whilst running alongside some moving waggons for the purpose of uncoupling the four leading waggons, which were being propelled into the No. 4 siding, he stumbled over a piece of coal that during the night had fallen from a loaded coal waggon, and falling to the ballast he received injuries as stated.</p> <p>Date of Accident—30th September, 1901. Place at which Accident happened—Wednesbury Goods Yard. Name of Person injured—Norman Bates. Age of Person injured—22. Capacity in which employed—Extra Goods Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—4 hours. Nature of Injury—Right arm severely crushed.</p> <p>Description of Accident—At about 12 noon Bates and three other goods porters were engaged in sheeting some loaded goods waggons in the goods shed, but before the sheeting had been completed, in order to make room for other waggons, the Goods-foreman, G. Harbidge, gave instructions for the loaded waggons to be taken from the shed and placed in the Darlaston down storage siding, after which he instructed Bates to follow the waggons and complete the sheeting. Whilst Bates was engaged in tying the string at the end of one of the waggons the shunter, T. Phillips, not having any reasons to suppose that anyone was working there, took the shunting engine into the siding to get out some empty waggons, and when the waggons were closed up Bates' right arm was crushed between the buffers and so injured that at the time of my Inquiry he was still off duty.</p>	<p>stumbled, but from information gained at my inquiry I believe such obstructions are removed daily.</p> <p>In this case I consider the mishap was accidental.</p> <p>A. F.</p> <p>It is very seldom that loaded goods waggons are placed in the storage siding until they are ready to leave the station. The siding is on a curve, so that not only was the shunter unable to see Bates but it was impossible for Bates to see either Phillips or the shunting engine.</p> <p>Bates had only been employed by the Company for six days previously to the accident, and I certainly think it was bad judgment on the part of Foreman Harbidge to send him to work in the siding referred to, and seeing that Harbidge did so without informing the shunter of the exceptional working, I am of opinion that he is responsible for the mishap.</p>	<p>For future safety I recommend that whenever goods men are sent to work in sidings not specially used for loading or unloading traffic, in addition to a warning being given to the shunters, a red flag by day and a red light by night should be first exhibited on the waggon which is nearest to the entrance of the siding</p> <p>A. F.</p>
MIDLAND AND GREAT NORTHERN JOINT.	<p>Date of Accident—11th September, 1901. Place at which Accident happened—Murrow. Name of Person injured—Oscar George Stammers. Age of Person injured—32. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—7 hours. Nature of Injury—Hip-bone and knee injured. Still off duty on 12th November.</p> <p>Description of Accident—Stammers was working with the 4.40 p.m. up goods train from Sutton Bridge to Peterborough, which arrived at Murrow at 9.30 p.m. On arrival there the train was left standing on the up main line at the west end of the station while the engine with three waggons attached were taken along the shunting spur for the purpose of attaching a waggon standing in the "back road." On</p>	<p>The mishap was accidental.</p> <p>At the same time it is surprising that the three vehicles and engines should have travelled into the "back road" after the leading vehicle had gone along the shunting spur, as the points lie for that line in their normal position and have to be held for the "back road."</p> <p>From the evidence given no one was near the points at the time, and directly afterwards they were found to be working properly, and have not been altered in any way since.</p> <p>When I held my Inquiry I examined them and found them in good order, and also saw them working satisfactorily.</p> <p>J. J. H.</p>	



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>MIDLAND AND GREAT NORTHERN JOINT</b> — <i>cont.</i>	reaching the hand points leading to that road Stammers held them, and after attaching the vehicle he got inside it and rode forward with it. When it was over the points leading back to the shunting spur he signalled the driver to stop, and after seeing that the points were in proper position he signalled him to set the vehicles back along the shunting spur to couple them to the train. While this was being done the leading vehicle went along the shunting spur (the proper line), but from some unexplained cause the other vehicles and the engine went into the back road causing the vehicle which was on the shunting spur, and in which Stammers was still riding, to be derailed and thrown right across the shunting spur, and he was thrown out off the vehicle on to the inner rail of the main line, with the result stated above.		
<b>NORTH BRITISH ...</b>	<p>Date of Accident—6th July, 1901. Place at which Accident happened—South Leith. Name of Person injured—John Dalgarno. Age of Person injured—16. Capacity in which employed—Redcap. Number of booked working hours per diem—12. How long on duty at time of Accident—6½ hours. Nature of Injury—Left foot bruised.</p> <p>Description of Accident—In this case Dalgarno was assisting with an engine and waggons on the Edinburgh Dock line, and as he was reversing the position of one of the tumbler lever points the ball on the lever fell on his left foot causing injuries as stated above.</p>	<p>Accidents to the redcaps at Leith are, in my opinion, far more numerous than they should be. As a rule these redcaps are boys with no previous railway experience. At the time of this mishap Dalgarno had only been in the service three weeks, and (although in this case the accident was not serious and may be considered as being due to his own want of caution) I certainly think he ought not to have been allowed to assist in shunting, especially on busy dock lines which are usually blocked with waggons.</p> <p>A. F.</p>	
	<p>Date of Accident—14th August, 1901. Place at which Accident happened—Bridgeton Cross. Name of Person injured—James Wilson. Age of Person injured—31. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—5 hours. Nature of Injury—Left eye out. Off duty 1 week.</p> <p>Description of Accident—On the morning in question Wilson took an engine into No. 7 siding to draw out some vehicles for shunting purposes. At the time Carriage cleaner David Law was working inside one of the vehicles which was not fitted with inside door handles. Wilson closed the door, shunted the vehicles into No. 8, the adjoining siding, after which he shunted some other vehicles into No. 7 siding, and then went to open the door; while doing so the iron clasp, projecting from the side of it, struck his left eye, with the result stated above.</p>	<p>The mishap appears to have been accidental.</p> <p>J. J. H.</p>	
	<p>Date of Accident—29th August, 1901. Place at which Accident happened—St. Margaret's Engine Shed. Name of Person injured—George Spence. Age of Person injured—18.</p>	<p>It appears that, according to his usual practice, the weighing-machine clerk, John Paterson, was standing close to the foot crossing</p>	<p>It is impossible for one man properly to protect the foot crossing in question during the night time, and owing to the foot traffic being</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—12. How long on duty at time of Accident—8 hours. Nature of Injury—Face, body, and left leg bruised.</p> <p>Description of Accident—The workmen's cabin is situated at the north end of the coaling stage, and to get to it, owing to the cabin being on a much higher level than the locomotive yard, it is necessary to go up several steps and then to cross over the incline siding, up which waggons are propelled to the coaling stage.</p> <p>At about 2.5 on the morning in question, when Spence and three other cleaners were hurrying to the cabin, they failed to notice that several waggons were being pushed up the incline, and although the other youths just managed to get clear, Spence, who was following, failed to do so, with the result that he was struck by one of the buffers of the leading waggon and was knocked down.</p> <p>Date of Accident—1st September 1901. Place at which Accident happened—Camlachie. Name of Person injured—Andrew Gordon. Age of Person injured—34. Capacity in which employed—Goods Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours. Nature of Injury—Body and right leg crushed.</p> <p>Description of Accident—Gordon had worked in charge of an empty waggon train from Glasgow General Terminus to Camlachie, from which station he then had to work a special goods train to Whifflet. On reaching Camlachie he was told that the waggons which were to form his train were standing in the "Whifflet" siding, and after having accompanied his brake van into the "grain" siding, where it was shunted for short storage, he walked across the yard to the Whifflet siding, but just as he had finished looking at the waggon labels the waggons were moved forward for shunting purposes. As the waggons were moving ahead Gordon got on the side of the last one and rode up the siding until, just when approaching the V crossing, he collided with a waggon standing in the adjoining "Bend" siding, and was knocked from his position, receiving injuries owing to which he was off duty six weeks.</p>	<p>to give any necessary warning to men about to cross the line, but, unfortunately, on this occasion he was standing on the side nearest to the cabin, and so was unable to see the cleaners until they had reached the top of the steps, and then, before he could stop them, they were on the crossing. Spence fully admits that he ought to have noticed the approaching waggons, and that the mishap was due to his own want of caution.</p> <p>The waggon by which Gordon was injured was placed in the "Bend" siding about two hours previously by Acting-Shunter J. Marshall, who fully admits that, although clear for other waggons to pass, it was not left sufficiently clear to allow of shunting operations being carried on without risk of injury to the staff as directed in Rule 184c.</p> <p>The mishap occurred at about 12.15 a.m., and as the nearest fixed lamp was 37 yards distant and on the opposite side of the Whifflet Siding, Gordon states that he was not able to see the position of the standing waggon.</p> <p>Gordon certainly acted unwisely in riding up the siding without first ascertaining that the route was clear of obstructions, and especially so as he states that this was the first occasion on which he had ever been down the Whifflet siding. At the same time there can be no doubt that the primary cause of the mishap was the non-observance of the rule referred to, for which, in my opinion, Acting-Shunter J. Marshall is to blame.</p>	<p>somewhat heavy, <del>lamp</del> that for future safety, a small hand or drop rail might be provided and placed across the steps, so as to prevent anyone from ascending them while waggons are being propelled up the incline siding.</p> <p>A. F.</p> <p>At the point where this accident occurred the lighting is not at all satisfactory, but I am afraid that, owing to the formation of the different sidings, it would be practically impossible to fix a lamp between them. I recommend, however, that the Company should consider whether a second lamp could not be placed with advantage about 30 yards further down the yard on the off side of the sidings.</p> <p>Steps should be taken to ensure that Rule 184c is strictly adhered to.</p> <p>A. F.</p>
NORTH EASTERN ...	<p>Date of Accident—5th July, 1901. Place at which Accident happened—Amble. Name of Person injured—James Sanderson. Age of Person injured—37. Capacity in which employed—Mineral Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—6½ hours. Nature of Injury—Right shoulder and arm and back bruised.</p> <p>Description of Accident—Amble is</p>	<p>The passenger traffic at Amble is only light, and although there is not a good view of approaching trains, I am quite satisfied that with ordinary care on the part of Sanderson this accident should not have happened.</p> <p>It appears that the reason of the engine driver being off the engine and engaged</p>	<p>To avoid any one having to stand between the "platform" and "loop line" for the purpose of holding over the points referred to, I recommend that a turnover lever should be fitted, besides which the Company should consider the advisability of making such arrangements as would avoid the necessity of enginemen leaving their</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<p><b>NORTH EASTERN—</b> <i>cont.</i></p>	<p>the terminus of a branch line from Chevington. Passenger trains arrive at and depart from the same platform. Next to the platform line there is a short loop line, connected for "running round" purposes, from which there is also a connection with the No. 1 mineral siding. The lever working the hand points leading to the mineral siding is placed in the 6-foot space between the "platform" and "loop" lines.</p> <p>At about 9.50 a.m., whilst engaged in shunting two waggons in the No. 1 mineral siding, and when running for the purpose of lowering a break lever, in trying to pass the hand point lever which, on that occasion, was being held over by the engine driver (W. W. Wright), Sanderson got foul of the platform line on which a passenger train was then approaching, and failing to notice this, he was struck by the engine and knocked down, with the result stated above.</p> <p>Date of Accident—13th July, 1901. Place at which Accident happened—Leeds (Neville Hill). Name of Person injured—Arthur Whincup. Age of Person injured—22. Capacity in which employed—Carriage Cleaner. Number of booked working hours per diem—10. How long on duty at time of Accident—3 hours. Nature of Injury—Right thigh injured. Off duty 3 weeks.</p> <p>Description of Accident—While Whincup was engaged sweeping out a compartment of a vehicle, the door of the compartment being open, and the carriage standing in one of the sidings at Neville Hill, some other vehicles were shunted into the same siding, the force of the collision causing him to fall out on to the ground, with the result stated above.</p> <p>Date of Accident—16th July, 1901. Place at which Accident happened—West Hartlepool. Name of Person injured—Henry Heavens. Age of Person injured—20. Capacity in which employed—Casual Goods Porter. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—8½ hours. Nature of Injury—</p>	<p>in holding over the hand points in this case was owing to him having just left the footplate for the purpose of handing the hose of the water crane to the fireman. At the same time, it was fully admitted by the Company's representative at my Inquiry, and also the stationmaster, that owing to there being no shunters provided at that station, even had the driver not held over the points, his fireman would have had to leave the engine for that purpose. This is to my mind a very unsatisfactory arrangement.</p> <p>The mishap appears to have been due to other vehicles having been shunted against the one Whincup was working at without any warning, but he does not know who shunted the vehicles into the siding. Further, he continued at work for the rest of the day without informing either his foreman or any of the men working with him that he had met with an accident, and it was not until the Monday following that his foreman, who had sent to see why he had not come on duty, knew anything about the matter. Although none of the Company's representatives seem to doubt that Whincup met his accident in the manner he describes, there is no corroborative evidence that it did occur as stated by him, and he certainly acted very unwisely in not reporting the matter directly it occurred. However, from the evidence given it is clear that the system of working at this busy place has been far from satisfactory, as previous to this accident there was no precaution taken whatever for the safety of the carriage cleaners.</p> <p>This mishap appears to have been chiefly due to Heavens not receiving proper warning in accordance with Rule 112 (a). However, shunter John Edwarson, who was in charge of the shunting operations, and responsible for giving the warning, had to walk forward to couple the engine</p>	<p>engines for the purpose of holding over points during shunting operations.</p> <p>A. F.</p> <p>For future safety it is to be hoped that the Company's instructions for the protection of carriage cleaners will be sent to all places where carriage cleaners are employed, and that they will be strictly enforced.</p> <p>J. J. H.</p> <p>For future safety the Company should be asked to make arrangements for their assistant shunters to be supplied with coupling poles, so that they may carry out Rule 23 (a). Further, the goods porters should be supplied with a copy of the rules, in accordance with Rule 17 (a).</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS--*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<p><b>NORTH EASTERN—</b> <i>cont.</i></p>	<p>Three fingers of left hand caught between the buffers of two waggon and slightly injured. Off duty 2 days.</p> <p>Description of Accident—On the afternoon in question, while Heavens was in the act of getting into a waggon standing in No. 5 road, for the purpose of taking a sheet out of the vehicle, he placed his hands on the buffer, intending by that means to climb into the waggon; just at that moment an engine came against the vehicles, closing the buffers of them together, with the result stated above.</p> <p>Date of Accident—22nd July, 1901. Place at which Accident happened—Darlington. Name of Person injured—William Elenor. Age of Person injured—60. Capacity in which employed—Goods Porter. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—8 hours. Nature of Injury—Right foot injured. Off duty 2 days.</p> <p>Description of Accident—On the afternoon in question a waggon was being drawn by a horse from the goods shed into the "Hope Town Road." While this was being done Elenor followed the vehicle, holding one of the sheet strings for the purpose of preventing the sheet from being blown off by the wind. On approaching a pair of points (the lever of which is fixed between the "Hope Town Road" and the adjoining siding) he failed to notice the position of the point lever which was raised while the waggon was passing over the points, but the moment the rear wheels were over them the lever fell upon his right foot, with the result stated above.</p> <p>Date of Accident—23rd July, 1901. Place at which Accident happened—York. Name of Person injured—Edward Dwyer. Age of Person injured—34. Capacity in which employed—Brake Examixer. Number of booked working hours per diem—12, with 1 hour off for meals. How long on duty at time of Accident—7 hours. Nature of Injury—Thighs and arms injured. Off duty 2 days.</p> <p>Description of Accident—At 1.10 a.m. on the morning in question, Engine Driver A. Ridley with engine No. 237 was taking a train of 12 empty passenger vehicles from the old station to No. 3 platform in the new station. On approaching the disc signal fixed at the south end of the latter station, he whistled for the signal to be taken off so as to permit him to travel along the independent line, which was the proper line to travel upon to place the train where it was required, although this can also be done by travelling along the shunting neck to the south end and then along the independent line. There is no fixed signal for the shunting neck, the drivers working to the shunters' signals when using that line. Ridley states that after whistling</p>	<p>to to the vehicles, owing to his assistant, B. Merryfield, not being supplied with a coupling pole, and in the meantime Heavens came from the goods shed to the waggon unseen by Edwanson. I may point out that Heavens was inexperienced in railway work, and had not been supplied with a copy of the Company's rules, in accordance with Rule 17 (a).</p> <p>The sheets are loosely thrown over the waggons in the goods shed and are secured after the vehicles are drawn out. In this case Elenor was following the vehicle for the purpose of tying the sheet strings after it had been brought to rest in the "Hope Town Road." He frankly admits that he knew the exact position of the point lever, but for the moment forgot about it. There was plenty of room for him to have walked behind the waggon well clear of the point lever, and consequently the mishap was due to his own want of care.</p> <p>J. J. H.</p> <p>The evidence in this case is conflicting. Driver Ridley states that when he received the hand signal from some one on the ground to go forward along the shunting neck, he said to Shunter F. Hayter, who was then riding on the footstep of his engine, "Is that signal for us," and that the latter replied "I think so." Hayter denies this, and further states that he was not riding on the footstep of the engine but on the foot-board of the second vehicle from the engine. Fireman A. Douglas states that he heard no conversation between Ridley and Hayter. If a hand signal was given to Ridley he cannot say who gave it, nor has this yet been ascertained. Shunter F. Craven, who was the only person near the spot, was in such a position that Ridley could not see the white light of his hand lamp, but he heard the engine approaching, and by its beat</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>for the signal to permit him to go out on to the independent line, he received a hand signal from some one on the ground to go forward along the shunting neck. This he did, with the result that 17 yards south of the disc signal his engine collided with a saloon carriage standing foul in the "front fish road" and forced a covered carriage truck which was in front of the saloon carriage over on to the cab of engine No. 225 which was standing at rest in the "back fish road" (the adjoining siding). Dwyer, who was examining the saloon carriage, which was ticketed defective, was struck by engine No. 237 and was thrown under the carriage truck and injured as stated above.</p>	<p>he knew that it was travelling so quickly that it would collide with the vehicles which were standing foul. He therefore rushed forward and exhibited a red light, but was not in time to prevent the collision.</p> <p>The responsibility for this mishap, which might have been far more serious, rests with Engine Driver Alfred Ridley, and whether he received a hand signal or not, he ought not to have travelled so quickly along the shunting neck. Besides this, if he had kept a proper look-out ahead, as the place was well lighted, he might have seen that the vehicles with which his engine collided were foul, in time to have prevented the mishap.</p> <p>J. J. H.</p>	
	<p>Date of Accident—23rd July, 1901. Place at which Accident happened—York. Name of Person injured—Sam Wardman. Age of Person injured—26. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—1½ hours. Nature of Injury—Three fingers of left hand injured, two since partly amputated. Still off duty when inquiry was held.</p> <p>Description of Accident—On the afternoon in question, Wardman went on duty to work with the 4.0 p.m. goods train from York to Thirsk. While the engine stood in No. 2 independent goods line at York, he left the footplate for the purpose of changing the engine head lamps.</p> <p>After doing so, when returning to the footplate, the engine then being in motion, he slipped off the outside framing and fell to the ground with his left hand on the rail, with the result stated above.</p>	<p>The mishap appears to have been due to misadventure. At the same time, it is clear from the evidence given that the engine men on this line are regularly permitted to leave the footplates of their engines in motion, and the practice is so general that if the fireman is at work on the outside framing, as in this case, when the engine is at rest, the driver starts the engine and allows the fireman to return to the foot plate by walking along the outside framing while it is in motion.</p>	<p>Many accidents have happened to engine men on this railway through being off the foot plates of the engines in motion, working at or walking to and from other parts of the engine for various purposes; and for future safety it is desirable that the Company should issue stringent instructions to their engine men that they must not be on any other part of the engine but the foot plate while it is in motion. Some of the other Companies have issued orders to this effect with good results.</p> <p>J. J. H.</p>
	<p>Date of Accident—6th August, 1901. Place at which Accident happened—Near Heaton. Name of Person injured—John Grant. Age of Person injured—46. Capacity in which employed—Platelayer. Number of booked working hours per diem—11, with 1½ hours off for meals. How long on duty at time of Accident—8½ hours. Nature of Injury—Left arm run over and since amputated. Still off duty at the time of the inquiry.</p> <p>Description of Accident—On the afternoon in question 11 men, including Grant, in charge of Sub-Inspector John Mason, were re-sleeping on the up main line at about 580 yards west of Heaton Station. While the men were so engaged Mason observed a goods train approaching upon the line on which the men were working, the train being then fully 200 yards away, and warned them all to get</p>	<p>There was no special "look-out" man appointed in this case, but it is clear from the evidence that Sub-Inspector Mason acted as "look-out" man and took every possible precaution for the safety of the men. In addition, the driver of the goods train, J. Whillis, sounded his engine whistle loudly for some time to warn the men of its approach, and also saw them all step clear. He afterwards saw Grant attempting to cross the up main line in front of his engine, but it was then so close to him that he was unable to bring it to rest before it struck Grant.</p> <p>The mishap appears to have been chiefly due to Grant's</p>	<p>For future safety it is to be hoped that the Company will take steps to ensure that the rules mentioned are strictly complied with at all times.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— cont.	<p>clear. They all, with the exception of Grant, stepped clear and stood on the down main line, but he took the opposite direction and stepped on to the Tynemouth branch down main line, on which a train of empty carriages was then approaching. When he observed this train he attempted to cross the up main line to where the other men stood, but before he had time to do so he was struck and knocked down by the engine of the goods train, and fell with his left arm across the rail, with the result stated above.</p> <p>Date of Accident—10th August, 1901. Place at which Accident happened—Blaydon Sidings. Name of Person injured—Joseph White. Age of Person injured—27. Capacity in which employed—Assistant Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—2 hours. Nature of Injury—Left hand injured. Off duty 1 week.</p> <p>Description of Accident—At 2 p.m. on the date in question, during shunting operations, Shunter C. Martin uncoupled five vehicles and shunted them into the "middle road," and, as they were running down the incline, White attempted to bring them to rest by placing one end of his shunting pole on the top of the brake lever and underneath the waggon spring, and then pressing the whole of his weight upon the pole until he got the pin in position to prevent the brake lever flying upwards, but before he could accomplish this the other end of the pole came in contact with a waggon standing in the "back road" (the adjoining siding), causing his left hand to be crushed between the shunting pole and the spring of the waggon in motion in the "middle road," with the result stated above.</p>	<p>becoming confused when he saw the train of empty carriages approaching on the down Tynemouth branch line. At the same time he was somewhat inexperienced with the work, having only been five months employed as a platelayer. Rule 273 (a) requires that when a train is approaching the men must not remain on any running line, but must at once move clear of all lines, but as neither Grant nor any of the other platelayers who gave evidence had been supplied with a copy of the rules in accordance with Rules 17(a) and 240, they cannot be blamed for not carrying out Rule 273 (a). Neither had the rules been read to any of the men as provided for in Rule 24, and consequently those in authority are to blame, because, had Grant stepped clear of all lines in the first instance, the accident would not have occurred.</p> <p>White's chief duties were to turn the hand points and attend to the waggon brakes, Martin performing most of the coupling and uncoupling operations. The following special instructions have an important bearing on this accident:—</p> <p>"Use of Brake Sticks and Shunting Poles.—Attention has been drawn to the fact that brake sticks and shunting poles are being used for purposes other than those for which they are intended. This must be discontinued, and guards and shunters must only make use of brake sticks and shunting poles for the purposes for which they are provided."</p> <p>White frankly admits that he had been supplied with a copy of the instructions quoted, and knew that he was disregarding them by attempting to pin down the waggon brake, but as there were no brake sticks on hand he had no other alternative. The brake sticks are only 3 feet 10 inches long, but the shunting poles are 6 feet in length, and as the space between the two roads mentioned, at the spot where the accident happened, is only 5 feet 6 inches, it is not surprising that the shunting pole caught the vehicle standing in the "back road."</p> <p>The mishap was due to there being no brake sticks on hand, and the insufficient space between the two roads in question.</p>	<p>For future safety it is to be hoped that the Company will take steps for a supply of brake sticks being always on hand, so that the men may carry out the special instructions quoted, and also consider the advisability of giving a greater clearance between the "middle road" and "back road." This can be easily done as the latter road is the most northern one, and there is ample space to move it further northwards.</p> <p>J. J. H.</p>

RECORDS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>Date of Accident—21st August, 1901. Place at which Accident happened—Warkworth. Name of Person injured—Thomas Crowe. Nature of Injury—Temple cut.</p> <p>Description of Accident—Crowe is employed as a groom by Sir Ridley Lord, and on the morning in question he travelled in a London and North Western Company's horse box, in which a horse was loaded, attached to the rear of a passenger train from Newcastle to Warkworth. On reaching the latter station at 9.45 a.m. the horse box was detached from the train by Porter J. Howey, and after he had got on the footstep for the purpose of so riding down the siding, the Guard, T. Thompson, who had watched the porter's movements, signalled to the engine driver to set back. As the vehicle ran from the train and approached the unloading dock Howey got off the step, thinking he could apply the Westinghouse brake by removing the pipe from the rear stud, but he then found that the vehicle was only fitted with a pipe. There being then no means of stopping the horse box it collided with the buffer stops, and by the impact Crowe was thrown against the side of the compartment in which he was riding, and injured as stated above.</p>	<p>It appears that the train was stopped specially immediately it had cleared the platform at Newcastle for the horse box to be attached, and although it was the guard's duty to ascertain and make known to the engine driver the condition of the brake he failed to do so, and until after it had been detached at Warkworth he did not know that the London and North Western horse box was not fitted with a brake.</p> <p>The Company's Rule 113B strictly forbids the loose shunting of vehicles conveying passengers or live stock, but from the evidence of the Stationmaster, W. Farg, the Guard, T. Thompson, and the porter, that rule has never been acted on at Warkworth, for which, of course, the stationmaster is to blame. At the same time, having neglected to notice the condition of the brake, both on the attaching and detaching of the vehicle, and himself signalling to the engine driver to make the loose shunt in question, I am of opinion that, in this case, the Guard, T. Thompson, is chiefly to blame for the accident.</p> <p style="text-align: right;">A. F.</p>	
	<p>Date of Accident—31st August, 1901. Place at which Accident happened—South Bank. Name of Person injured—Joseph Brereton. Age of Person injured—30. Capacity in which employed—Goods Guard. Number of booked working hours per diem—11½. How long on duty at time of Accident—4 hours. Nature of Injury—Hips injured. Still off duty when inquiry was made.</p> <p>Description of Accident—During shunting operations in the goods yard, while two waggons were being propelled into No. 1 siding, Brereton was riding upon the steps fixed at the rear of the leading waggon, for the purpose of lifting the brake lever fixed at that end of the vehicle, and while doing so he was caught between the side of that waggon and another waggon which was standing in the "bank" siding (the adjoining line), with the result stated above.</p>	<p>Two days prior to the accident Brereton was instructed to fill the "bank" siding with empty waggons. When he did so he left the leading vehicle standing too near the fouling point of No. 1 siding, contrary to Rule 184 (c). This he frankly admits, and also that he was well aware of the position of the waggon, but states that he momentarily forgot about it, and, further, that there was no necessity for him to have left it foul in the first instance. Consequently the responsibility for the mishap rests with himself.</p>	<p>The accidents from similar causes are so numerous that the Company should take steps strictly to enforce the observance of Rule 184 (c) by the staff.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—6th September, 1901. Place at which Accident happened—Heaton Junction. Name of Person injured—John Edward McCarthy. Age of Person injured—19. Capacity in which employed—Extra Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—10 hours. Nature of Injury—Bottom lip</p>	<p>In consequence of a previous accident, and at the request of the Board of Trade, the Company have posted special instructions in the Heaton engine-sheds forbidding men walking over the section of the line in question. McCarthy and Montcrieff were both fully acquainted</p>	<p>For future safety, I suggest that the Company should strictly enforce the order referred to.</p> <p style="text-align: right;">A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH-EASTERN— <i>cont.</i>	<p>lacerated and four teeth knocked out.</p> <p>Description of Accident—On the night in question, at about 9.15, after having travelled as passengers from Annitsford to Heaton, Engine-driver J. R. Montorieff and McCarthy walked along the line from the station to the engine sheds, and when passing Heaton Junction signal cabin McCarthy stumbled over a signal wire, and, falling to the ground, received injuries as stated above.</p> <p>Date of Accident—Sunday, 8th September, 1901. Place at which Accident happened—Holgate Sidings, York. Name of Person killed—George Bower Atkinson. Age of Person killed—33. Capacity in which employed—Head Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—9½ hours.</p> <p>Description of Accident—Atkinson was engaged with a shunting engine (No. 736) in the No. 2 down goods yard. At about 3.15 p.m. he accompanied the engine and 12 waggons to the No. 3 shunting neck, from which it was intended to run the waggons into different sidings. After making arrangements with his assistant, E. Smith, for the two first shunts to run into the No. 1 and No. 4 sidings, Atkinson stood wide of the siding, and signalled to the engine-driver to set back. He then went to the waggons and uncoupled the first, but the next moment he was seen lying across the rail, and before the engine and other waggons could be brought to a stand, several of them passed over his body. He died immediately afterwards.</p> <p>Date of Accident—13th September, 1901. Place at which Accident happened—Ryhope. Name of Person injured—John Henry Clements. Age of Person injured—22. Capacity in which employed—Goods Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—6 hours. Nature of Injury—Head cut.</p> <p>Description of Accident—It is Clements' duty to enter in a book the number of waggons which are detached from passing goods trains. At about 1 p.m., seeing a goods train in the sidings, he left the goods shed, and after requesting the assistant guard to place a certain waggon which had been standing in one of the sidings in another position, in order to save himself the trouble of walking down the sidings to ascertain the number of waggons which had</p>	<p>with those instructions, and I am therefore of opinion that in this case the mishap was due to misconduct, for which they are equally to blame.</p> <p>When visiting the point of accident I noticed four other enginemen were then using the same route as that taken by McCarthy and Montorieff. There is really no necessity for such an irregularity, because parallel with the railway there is a public street leading direct from the station to the sheds. Between the station and junction there are four sets of rails, over each of which there is a very heavy traffic.</p> <p>No one actually saw the accident. At the time Atkinson uncoupled the waggon, his mate, E. Smith, who was attending to the hand points, was in conversation with the yard foreman, W. Tindall, and owing to there being a brake van next to the engine he was not in view of the driver.</p> <p>It is impossible to say how the mishap occurred. There was no obstruction on the path. I am of opinion that when the deceased first tried to uncouple the waggons the coupling was at full stretch, and then whilst he was pressing on the shunting pole, owing to rear waggons being closed up, the coupling suddenly lifted, and he fell between the buffers, in which case the accident was due to misadventure.</p> <p>A. F.</p> <p>At the time of the mishap there was an empty waggon train passing on the up line, and, as Clements states, there is no doubt that this would prevent him from hearing the approaching passenger train. At the same time, as Clements fully admits, there was no necessity for him to get foul of the line referred to. I am, therefore, of opinion that the accident was due to his own want of caution.</p> <p>A. F.</p>	



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH-EASTERN— <i>cont.</i>	<p>been detached, he walked wide of the sidings on to the Sunderland and Seaham main lines, between which and the sidings there is a space of from 14 to 20 feet, with the intention of counting the wag-gons from that point, but at the moment when he had got foul of the down main line he was struck by the engine of a passenger train which was approaching in the rear and was knocked down.</p> <p>Date of Accident—16th September, 1901. Place at which Accident happened—Consett Junction. Name of Person injured—James Gibson. Age of Person injured—35. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—5½ hours. Nature of Injury—Rib and both thighs injured. Off duty 16 days.</p> <p>Description of Accident—Gibson was working with the 4.15 a.m. goods train from Blaydon Sidings to Darlington, which left Consett Junction with 28 waggons (chiefly loaded with iron plates) and a brake-van. The train had to be drawn up a rising gradient out of the yard, but on reaching the outlet points the main lines suddenly fall 1 in 60 to Lanchester, a distance of fully 4½ miles, and, consequently, it was necessary to pin down a number of waggon-brakes to steady the train down the incline. While Gibson and Shunter Thomas Scott were so engaged the former placed one end of his coupling-pole between the brake-lever and spring, pressing his weight upon it so as to get the pin in position to keep the brake hard on, and while attempting to do so that end of the pole caught in one of the spokes of wheel and the other end struck him on the thighs knocking him down. Fortunately he fell clear of the rails, with the result stated above.</p>	<p>Gibson fully admits that he had been supplied with a copy of the instructions which forbid him to use his coupling-pole for the purpose for which he was using it, but there was no brake-stick in the brake-van he was using, and as his train was running very late he was anxious to avoid further delay by seeking one. The mishap was due to Gibson using his coupling-pole as a brake-stick, but at the same time if the brake-van had been fully equipped at Blaydon sidings it might have been prevented. Under the circumstances it was impossible for Gibson to see to this before starting as, owing to his being late in coming on duty, his train was waiting his arrival, and the moment he arrived it was started before he had time to examine the brake-van to see whether he had a brake-stick.</p> <p>The brake-van attached to his train for his use on that day was what is known as a spare van, used by anyone. These vans are left open, and from the evidence given the goods guards have frequently found articles with which each van should be equipped missing, and have sometimes reported the matter.</p>	<p>For future safety it is desirable that arrangements should be made for someone being held responsible for seeing that all the brake-vans are fully equipped before they are attached to the trains if the guards have not sufficient time before starting to properly attend to this and the other duties they have to perform without causing delay to their trains.</p> <p>J. J. H.</p>
	<p>Date of Accident—16th September, 1901. Place at which Accident happened—Stockton. Name of Person injured—Harry Richardson. Age of Person injured—24. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—2½ hours. Nature of Injury—Head cut, hips, liver, and right arm injured. Still off duty when inquiry was held.</p> <p>Description of Accident—At about 10.45 p.m. it was necessary for a shunting engine to be taken from the goods yard to the coal depot sidings for shunting purposes. Richardson accompanied the engine, and as it was approaching a certain pair of hand-points which, in their normal position, lie for the coal siding, he jumped off the</p>	<p>A few days previous to the mishap Foreman Shunter William Scott placed a number of waggons in the coal siding to stand awaiting orders, leaving the leading vehicle standing foul, contrary to Rule 184(c). He frankly admits that he is alone to blame for the accident, and expresses his regret for the injuries caused. At the same time it is clear from the evidence given that the practice of leaving vehicles standing foul, especially during shunting operations, is far too general at this busy place.</p>	<p>For future safety it is to be hoped that the Company will take step to enforce Rule 184(c) at all times.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>engine and ran ahead to hold the points for the coal depôt sidings, after which he got upon the step of the engine to ride to the latter place, and while the engine was proceeding there he was crushed between the side of it and a waggon standing in the coal siding, with the result stated above.</p> <p>Date of Accident—18th September, 1901. Place at which Accident happened—Ferry Hill. Name of Person injured—John A. Glendinning. Age of Person injured—19. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—3 hours. Nature of Injury—Head injured. Off duty three days.</p> <p>Description of Accident—At 7 o'clock on the night in question Glendinning was working with a tank engine which was proceeding from the engine shed to the passenger station. While it was passing through the points leading from the back shed road to the shunting neck he was leaning over the side of the engine cab to ascertain whether the water was or was not running through the injector waste water pipe, when his head came in contact with a scaffolding pole which was being used in connection with the erection of a new signal cabin, with the result stated above.</p> <p>Date of Accident—19th September, 1901. Place at which Accident happened—Newcastle. Name of Person injured—Joseph Taylor. Age of Person injured—45. Capacity in which employed—Joiner's Labourer. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—4 hours. Nature of Injury—Ribs and head injured. Still off duty when inquiry was held.</p> <p>Description of Accident—At about 10 a.m. on the day in question, seven joiners and two labourers, including Taylor, were working on the high level bridge at the new way beams upon which the rails of the up main line are laid. Seven of the men were near to "look-out" man J. Clark at the north end of the bridge, and when warned by him that the 10 a.m. passenger train from Newcastle to</p>	<p>The scaffolding pole in question was fixed 3 feet 1 inch from the line on which the engine was running; it has now been taken down, the work having been completed. It was too near the running line to meet the requirements of the Board of Trade, but foreman bricklayer J. Simm, who had charge of the work and the fixing of the pole, was ignorant of these requirements, and did not receive any instructions from those in authority as to the clearance it was necessary for him to allow between the pole and the running line to admit of the engine-men leaning over the engine without risk of injury, and he had neither received a copy of the rules nor had them read to him in accordance with Rule 17 (a) and 241 respectively. It further appears that although it was dark when the mishap happened, there was no light fixed to or near the pole to warn Glendinning of its position. I am therefore of opinion that this mishap was due to the pole being fixed too near the running line, and to the fact that no proper precautions had been taken to draw the enginemens' attention to it, for both of which matters those in authority are chiefly responsible.</p> <p>Sleepers are placed across the top of the bridge, upon which thick longitudinal way beams are placed, the chairs and rails being laid upon the latter. While Taylor was necessarily in a kneeling position looking towards the underneath portion of the way beam screwing up a bolt, his body was so little above the rail level that the driver of the engine by which he was struck never saw him, neither could Taylor see the train approaching while performing the work he was engaged with. I do not know of a more dangerous and busy place for men to work at, and it is surprising that Taylor was permitted to work in the</p>	<p>For future safety the Company should issue definite instructions to all their foremen who may have charge of the erection of any new work, that all the material used in connection therewith must be fixed sufficiently clear of the running lines to admit of the enginemens, shunters, and others performing their duties without risk of injury.</p> <p>Steps should also be taken for Rules 17 (a), 241 and 242 to be strictly carried out at all times.</p> <p>J. J. H.</p> <p>For future safety it is desirable that when men are engaged working on busy sections of the line that some one should be always in charge of them, who should be held responsible for taking proper precautions for their safety, and when it is necessary for them to work so far apart, as in this case, a second "look-out" man should be appointed to warn those men who are working so far from the first "look-out" man that they cannot hear any warning the latter may give.</p> <p>Further steps should be taken for the Rules quoted being strictly carried out at all times.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>Sunderland was approaching, they all stepped clear, but as joiner T. H. Dobson and Taylor were working about 175 and 200 yards respectively further southwards, they did not hear Clark's warning. Fortunately Dobson saw the train approaching just in time to get clear, after which he called "look-out" to Taylor, but the latter did not hear his call, as he was at the time kneeling on the bridge in the four-foot way looking downwards screwing up a bolt underneath the way beam: however, shortly after on looking up he saw the engine close to him, and attempted to jump clear, but before he could do so he was struck by it, with the result stated above.</p>	<p>four-foot way without proper precaution having been taken for his safety. This omission was evidently due to the supervision being so lax, as the foreman who had charge of the work had not been near the place during the morning on which this accident happened, besides, he was frequently away for more than a day together, and during his absence no one was in charge of the men. Further, although all the men mentioned regularly work upon or near to the running lines, none of them have been supplied with a copy of Rules as directed in Rule 17 (a), neither have the Rules been read to them, as provided for in Rule 241.</p> <p>The responsibility for this mishap rests with those in authority (1) for neglecting to take proper precautions for Taylor's safety, and (2) for having permitted the men to drift into an unsatisfactory and dangerous system of working.</p>	<p>For future safety the Company should remove to the west side of the sidings, well clear of the running lines, those signal wires which work the signals fixed at that side. This is very desirable, and could apparently be easily done with advantage, as the signal cabins from which they are worked are situated on that side.</p> <p>The other signal wire and point rods should be protected with side timbers, and the ballast brought up to a level with the top of the timbers.</p> <p>If these improvements are made, it hardly appears necessary to provide more light, as I understand it is not often that the back road is so full of vehicles as on the night in question, consequently the light provided is not frequently obscured.</p> <p>Hall works from 13 to 15 hours every Monday, and arrangements should be made to reduce his hours within reasonable limits on that day.</p>
	<p>Date of Accident—23rd September, 1901. Place at which Accident happened—Alnwick. Name of Person injured—James Hall. Age of Person injured—25. Capacity in which employed—Shunter. Number of booked working hours per diem—Irrregular. How long on duty at time of Accident—14 hours 45 minutes. Nature of Injury—Left elbow and arm injured. Off duty 5 days.</p> <p>Description of Accident—At 10.45 p.m. on the day in question, during shunting operations in the cattle-waggon sidings, it was necessary for Hall to pin down some of the brakes of the waggons which were being shunted into the front road. While so engaged he walked in the six-foot way, and caught his right foot in an exposed signal wire, and fell against the axle box of a waggon at rest in the back road (the adjoining siding), with the result stated above.</p>	<p>In the path it was necessary for Hall to take while pinning down the waggon brakes, for a distance of 12 yards, at and about the spot where the mishap happened, he had to cross at different places three point rods and three signal wires. Two of the former and one of the latter are boxed in, the remainder being exposed, and to add to this danger, the boxing at the different places is fixed from 1½ to 8 inches above the ballast. Hall knew that there were some point rods and signal wires exposed, but thought he had passed them all, it being the most southerly obstruction that he fell over.</p> <p>The mishap was due to the signal wire being exposed and the place being in darkness. There is a lamp fixed near the spot, at the east side of the back road, but the light from it was obscured owing to some high waggons standing in in that road. Further, although the excessive hours worked by Hall do not appear to have greatly contributed to the accident, yet he could not have been so active and alert as was desirable after working for such a long period.</p>	<p>J. J. H.</p>
	<p>Date of Accident—28th September, 1901. Place at which Accident happened—Potto. Name of Person injured—William Daniels. Age of</p>	<p>In this case it is clear that the waggon left standing in No. 2 siding was too near the fouling point of</p>	<p>The accidents to men from similar causes on this line are so serious and numerous that it appears that Rule</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>Person injured—21. Capacity in which employed—Porter. Number of booked working hours per diem—11½. How long on duty at time of Accident—3 hours 50 minutes. Nature of Injury—Collar bone broken; head, face and body injured. Still off duty when inquiry was made.</p> <p>Description of Accident—At about 9.45 a.m. the 7.30 a.m. goods train from Stockton to Grosmont, during shunting operations at Potto, placed a waggon in No. 2 coal depôt siding, leaving it standing too near the fouling point of No. 1 coal depôt (the adjoining) siding. About one hour afterwards it was necessary to move a waggon off the coal depôt along No. 1 siding, and while it was travelling down the incline Daniels rode on the leading buffer, with his back in the direction in which the vehicle was travelling, holding the brake lever up with his right hand, in readiness to drop it, and then stand upon it with both feet, to apply the brake with force to bring the vehicle to rest at the bottom of the incline, but before it reached there, and when it was passing the vehicle standing in No. 2 siding, he was caught between the two vehicles, with the result stated above.</p>	<p>No. 1 siding, contrary to Rule 184 (c), but the evidence is conflicting as to who left the vehicle in that position.</p> <p>The primary cause of the mishap was due to the waggon having been left standing too near the fouling point of the two sidings; at the same time Daniels acted unwisely in not looking ahead while riding on the vehicle down the incline, but there is some excuse for his action as he had only been in the service 10 weeks, and at Potto for only five weeks, and consequently he was somewhat inexperienced in railway work.</p>	<p>184 (c) is either not clearly understood by the men, or that steps are not taken by those in authority to have it carried out, because so long as the vehicles are placed where other vehicles or engines will pass clear of them it is considered sufficient. For future safety it is desirable that the Company should issue definite instructions as to what clearance must be given between the fouling points of each siding to admit of shunting operations being carried on without risk of injury to the staff engaged in conducting them.</p>
	<p>Date of Accident—28th September, 1901. Place at which Accident happened—Sunderland. Name of Person injured—Thomas McGowan. Age of Person injured—30. Capacity in which employed—Porter. Number of booked working hours per diem—9. How long on duty at time of Accident—8½ hours. Nature of Injury—Ribs bruised. Off duty 2 days.</p> <p>Description of Accident—At about 11.45 on the night in question McGowan was working with engine No. 1394, which placed three passenger brake vans into the cattle dock siding. After uncoupling these vehicles from the engine he observed that the outlet points from the siding had been closed and the signal placed at danger, and as the engine was then ready to proceed light to the shed, he walked towards the south cabin to so inform the signalman. While on his way there he momentarily stood in the four-foot way of the up Penshaw branch line and turned round to see if the engine was still standing where he had left it. After which he looked ahead to walk to his destination, but when he did so he saw light engine No. 1229 approaching along the line he was foul of, and in jumping clear of it he fell on the side of some boxing covering two signal wires, with the result stated above.</p>	<p>The mishap appears to have been chiefly due to McGowan's own want of care. He acted very unwisely in standing in the four-foot way of the up Penshaw branch line, but at the same time if the boxing on which he fell had been level with the ballast it is probable that he would not have fallen.</p> <p>The boxing in question, and that which covers the other signal wires and point rods which cross the path the men have to use during shunting operations, is from five to nine inches higher than the ballast, and to add to the men's dangers the top of the boxing is not all level.</p>	<p>Owing to new sidings being put in, considerable alterations have been and are still being made at and about the spot where this mishap happened; consequently all the signal wires and point rods have not yet been protected, but all those that have been dealt with have been covered with boxing in the manner described.</p> <p>For future safety the Company should, wherever practicable, have the signal wires and point rods protected with side timbers with the ballast brought up to a level with the top of the timbers.</p>
SOUTH EASTERN AND CHATHAM.	<p>Date of Accident—24th July, 1901. Place at which Accident happened—Bricklayers' Arms. Name of Person injured—John Heasman. Age of Person injured—37. Capacity in which employed—Shunter. Number of booked work-</p>	<p>The shunter, S. Hanchett, who was responsible for shunting the 17 waggons and van into the siding, states:—"When making the shunt in question I was not aware that the</p>	<p>For the safety of the staff Rule 17A should be complied with, and for the safe working of the siding referred to, which is worked from both ends, I recommend that some arrange-</p>

J. J. H.

J. J. H.

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
SOUTH EASTERN AND CHATHAM— <i>cont.</i>	<p>ing hours per diem—8. How long on duty at time of Accident—50 minutes. Nature of Injury—Right leg run over, necessitating amputation.</p> <p>Description of Accident—At about 10.50 p.m. Heasman accompanied a shunting engine into the No. 5 siding from the east end for the purpose of taking out a brake van and eight waggons for marshalling. The van was fitted with a screw coupling, the "D" link of which, having been left over the hook on the same drawbar, prevented him coupling it up to the engine with the shunting stick, so that consequently he had to go between the engine and van for that purpose. Whilst he was so engaged 17 waggons and a brake van at the rear were run into the same siding by some other shunter, working at the opposite or west end, and on these vehicles colliding with the standing waggons they and also the engine were moved. This caused Heasman to fall down, and his right leg getting foul of the rail, was run over.</p>	<p>"sorting siding shunting engine was in the No. 5 siding, neither did I know there were any waggons in the siding. I went on duty at 10 p.m., but that was the first shunt I had made into No. 5. I did not know that there was any such rule as that I have now heard read (No. 113C). I have been in the service 13 years, and a shunter for 10 years, but I have never been supplied with a rule book."</p> <p>Rule 17A reads:—</p> <p>"Every . . . Shunter . . . must be supplied . . . and have with him . . . when on duty a copy of these Regulations."</p> <p>Neither the injured man (who had been in the service 14 years) nor other witnesses similarly employed had been supplied with a book of rules.</p> <p>The men cannot be blamed for not acting to rules they have no means of knowing. I am of opinion that in this case the accident was due to the shunters not knowing and acting to the Company's rules, for which those responsible for not supplying the rule books are to blame.</p>	<p>ment should be made for advising the men at the west or "Mercer's Crossing" end when an engine entering from the east end is engaged in the No. 5 siding, during which time no waggons should be put in from the west end.</p> <p>A. F.</p>

For other Reports of Inquiries into Accidents which have occurred during the nine months, see [Cd. 774 and 775].

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1902.











**RAILWAY ACCIDENTS.**

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**RETURNS**

OF

**ACCIDENTS AND CASUALTIES**

AS REPORTED TO THE BOARD OF TRADE BY THE SEVERAL RAILWAY COMPANIES  
IN THE UNITED KINGDOM.

During the Year ending 31st December 1901,

In pursuance of the Regulation of Railways Act (1871), 34 & 35 Vict. cap. 78 ;

TOGETHER WITH

**REPORTS OF THE INSPECTING OFFICERS, ASSISTANT  
INSPECTING OFFICERS, AND SUB-INSPECTORS OF THE  
RAILWAY DEPARTMENT TO THE BOARD OF TRADE,**

UPON

**CERTAIN ACCIDENTS**

Which were inquired into.

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Presented to both Houses of Parliament by Command of His Majesty.

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1902.

[Cd. 1101.] Price 2s. 5½d.

# TABLE OF CONTENTS.

	PAGE
SUMMARY of ACCIDENTS and CASUALTIES reported to the BOARD of TRADE during the Twelve Months ending 31st December 1901 ... ..	3
<b>TABLES :—</b>	
GENERAL NOTE showing basis on which TABLES are COMPILED ... ..	8
No. 1.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ; with figures for the UNITED KINGDOM for the previous Year ... ..	9
No. 2.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, in the different CLASSES of ACCIDENTS to TRAINS ... ..	10
No. 3.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS, or by the MOVEMENT of RAILWAY VEHICLES ... ..	12
No. 4.—NUMBER of PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the different CLASSES of ACCIDENTS occurring on the Lines of the several RAILWAY COMPANIES, to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the COMPANIES ... ..	14
No. 5.—NUMBER of PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS, or the MOVEMENT of RAILWAY VEHICLES—	
A. PASSENGERS ... ..	16
B. SERVANTS of COMPANIES and CONTRACTORS ... ..	18
C. OTHER PERSONS ... ..	24
No. 6.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the INJURIES ; with figures for the previous Year ... ..	26
No. 7.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES ; and also the Total Number of Persons employed in each Class of Service ... ..	27
No. 8.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, on the PREMISES of the RAILWAY COMPANIES ; with figures for the UNITED KINGDOM for the previous Year ... ..	28
No. 9.—NUMBER of SERVANTS of COMPANIES and of CONTRACTORS reported by the several RAILWAY COMPANIES to the BOARD of TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES ... ..	30
No. 10.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES ; and also the Total Number of Persons employed in each Class of Service ... ..	36
No. 11.—SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., reported to the BOARD of TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM, classified according to the NATURE of the ACCIDENT ; with figures for the UNITED KINGDOM for the previous Year ... ..	37
No. 12.—NUMBER of ACCIDENTS of each Class to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., reported to the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM ... ..	33
<b>REPORTS ON ACCIDENTS INQUIRED INTO—</b>	
A. REPORTS by INSPECTING OFFICERS ... ..	45
B. REPORTS by ASSISTANT INSPECTING OFFICERS ... ..	144
C. REPORTS by SUB-INSPECTORS ... ..	170

**Summary of Accidents and Casualties which have been reported to the Board of Trade as having occurred upon the Railways in the United Kingdom during the Twelve Months ending 31st December 1901.**

**I.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c.**

Accidents to trains, rolling-stock, permanent-way, &c., caused the death of 11 persons and injury to 637 persons, viz. :—

	Total for the Year 1901.		Total for the Year 1900.	
	Killed.	Injured.	Killed.	Injured.
Passengers ... ..	—	476	16	363
Servants of Companies ... ..	8	156	24	180
Other Persons ... ..	3	5	2	6
Total ... ..	11	637	42	1,049

It is noteworthy that train accidents did not cause the death of a single passenger in the course of 1901. This is the first time that such a gratifying record has been shown by these annual returns.

Of the 11 persons killed and 637 injured, 1 servant was killed and 187 passengers and 16 servants were injured in collisions between passenger trains or parts of passenger trains ; 1 servant was killed and 160 passengers and 27 servants were injured in collisions between passenger trains and goods or mineral trains, light engines, or other moving vehicles ; 1 servant was killed and 55 servants and 1 other person were injured in collisions between goods trains, light engines, or other moving vehicles ; 4 passengers were injured in collisions between trains and vehicles standing foul of the line ; 3 servants were killed and 64 passengers and 2 servants were injured in collisions between trains and buffer-stops or vehicles at rest, caused by trains running into stations at too high a speed ; 18 passengers and 11 servants were injured by collisions between trains and buffer-stops, &c., from causes other than the above ; 2 passengers were injured by a train coming in contact with projections from another train on a parallel line ; 34 passengers and 5 servants were injured by passenger trains or parts of passenger trains leaving the rails ; 11 passengers and 1 other person were injured by goods trains or parts of goods trains, light engines, &c., leaving the rails ; 3 persons were killed, and 4 passengers, 12 servants, and 3 other persons were injured by trains running into obstacles on the line ; 2 servants were killed, and 6 servants were injured through the bursting of boilers or tubes, &c., of engines ; 10 servants were injured by accidents arising from the failure of rolling-stock (wheels, tyres, axles, &c.) ; and 3 passengers and 1 servant were injured in other accidents.

Altogether, including accidents in which no personal injury was sustained, there were reported during the twelve months, 51 collisions between passenger trains or parts of passenger trains ; 55 collisions between passenger trains and goods or mineral trains, light engines, &c. ; 50 collisions between goods trains, parts of goods trains, light engines, &c. ; 7 collisions between trains and vehicles standing foul of the line ; 29 collisions between trains and buffer-stops, &c., of which 15 were caused by trains running into stations or sidings at too high a speed, and 14 were due to other causes ; 2 cases of trains coming into contact with projections from other trains running on parallel lines ; 65 cases of passenger trains or parts of passenger trains leaving the rails ; 17 cases of goods trains, &c., or parts of goods trains leaving the rails ; 211 cases of trains running through gates at level-crossings or into other obstructions\* ; 17 cases of fire in trains or vehicles ; and 2 cases coming under the heading of miscellaneous accidents to trains.

\* During the twelve months, 45 horses, 5 donkeys, 30 beasts and cows, 125 sheep, 6 pigs, 3 dogs, and 1 deer were run over and killed ; and 4 horses, 3 beasts, 2 sheep, and 1 dog were injured.

In addition to the above the following accidents to, and failures of, rolling-stock and permanent-way were reported, viz.:—6 cases of the bursting of boilers, tubes, &c., of engines; 5 cases of the failure of machinery, springs, &c., of engines; 199 failures of tyres; 2 failures of wheels; 175 failures of axles; 12 failures of couplings; 324 failures of rails; 19 cases of flooding of the permanent-way; 10 slips in cuttings or embankments; and 11 fires at stations.

Of the 199 tyres which failed, 9 were engine-tyres, 2 were tender-tyres, 4 were coach-tyres, 23 were van-tyres, and 161 were waggon-tyres; of the waggons, 125 belonged to owners other than the Railway Companies; 120 tyres were made of iron and 79 of steel; 2 of the tyres were fastened to the wheels by Gibson's patent method; 6 by Mansell's patent method, 1 of which left the wheel when it failed; 177 by bolts, rivets, or screws, 4 of which left their wheels when they failed; and 14 by other methods, 1 of which left the wheel when it failed; 18 tyres broke at bolt or screw holes, 64 in the solid, and 117 split longitudinally or bulged.

Of the 175 axles which failed, 116 were engine axles, viz., 95 crank or driving, and 21 leading or trailing; 10 were tender axles; 1 was a coach axle; and 48 were waggon axles; of the waggons, 24 belonged to owners other than the Railway Companies. Of the 95 crank or driving axles, 24 were made of iron and 71 of steel. The average mileage of 23 of the crank or driving axles made of iron was 229,754 miles, and of 69 of the crank or driving axles made of steel 248,775 miles.

Of the 324 rails which broke, 77 were double-headed, 209 were single-headed, 1 was a bridge rail, and 37 were Vignoles' rails; of the double-headed rails, 35 had been turned; 1 rail was made of iron and 323 of steel.

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## II.—ACCIDENTS TO PASSENGERS FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., INCLUDING ACCIDENTS FROM THEIR OWN WANT OF CAUTION OR MISCONDUCT; ACCIDENTS TO PERSONS PASSING OVER LEVEL-CROSSINGS; TRESPASSERS; AND OTHERS.

Of the 657 persons killed and 2,016 injured under this heading, 135 of the killed and 1,669 of the injured were passengers. Of these, 35 were killed and 155 injured by falling between carriages and platforms, viz., 22 killed and 79 injured when getting into, and 13 killed and 76 injured when alighting from, trains; 14 were killed and 837 injured by falling on to platforms, ballast, &c., viz., 102 injured when getting into, and 14 killed and 735 injured when alighting from, trains; 18 were killed and 9 injured by falling off platforms and being struck or run over by trains; 21 were killed and 11 injured whilst passing over the line at stations, viz., 9 killed and 7 injured at stations where there is a subway or footbridge, and 12 killed and 4 injured at stations where there is neither a subway nor footbridge; 356 were injured by the closing of carriage doors; 23 were killed and 64 injured by falling out of carriages during the travelling of trains; and 24 were killed and 237 injured from other causes connected with the movement of trains or railway vehicles. 55 persons were killed and 26 injured whilst passing over railways at level-crossings, viz., 22 killed and 11 injured at public level-crossings, 14 killed and 11 injured at occupation-crossings, and 19 killed and 4 injured at foot-crossings. 282 persons were killed and 154 injured when trespassing on the railways; 144 persons committed suicide on railways, and 17 persons were injured while apparently attempting to commit suicide; 17 persons were killed and 122 injured while on business at stations and sidings; and of other persons not specifically classed, 24 were killed and 28 injured.

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## III.—ACCIDENTS TO SERVANTS IN THE EMPLOY OF RAILWAY COMPANIES OR CONTRACTORS, CAUSED BY THE TRAVELLING OF TRAINS OR THE MOVEMENT OF VEHICLES USED EXCLUSIVELY UPON RAILWAYS.

During the twelve months there were 503 servants of companies or contractors reported as having been killed and 4,087 injured, in addition to those included in Division I. 14 were killed and 571 injured whilst coupling or uncoupling vehicles;

4 were killed and 36 injured by coming in contact, whilst riding on vehicles during shunting, with other vehicles, &c., standing on adjacent lines ; 20 were injured whilst passing over or standing upon buffers during shunting ; 4 were killed and 234 injured in getting on or off, or by falling off, engines, waggons, &c., during shunting ; 7 were killed and 378 injured whilst braking, spragging, or chocking wheels ; 1 was killed and 112 injured whilst attending to ground-points ; 11 were killed and 433 injured whilst moving vehicles by capstans, turntables, props, horses, &c., during shunting ; and 47 were killed and 525 injured by various other accidents during shunting operations. 20 were killed and 78 injured by falling off engines, &c., during the travelling of trains ; 10 were killed and 260 injured whilst getting on or off engines, vans, &c., during the travelling of trains ; 9 were killed and 56 injured by coming in contact with over-bridges or erections on the sides of the line during the travelling of trains ; 362 were injured whilst attending to the machinery, &c., of engines in steam ; 95 were killed and 117 injured whilst working on the permanent-way, sidings, &c. ; 3 were killed and 3 injured whilst attending to gates at level crossings ; 164 were killed and 301 injured whilst walking, crossing, or standing on the line on duty, of whom 114 were killed and 240 injured in and about stations, and 50 were killed and 61 injured at other parts of the line ; 20 were killed and 109 injured by being caught between vehicles ; 9 were killed and 64 injured by falling or being caught between trains and platforms, walls, &c. ; 44 were killed and 35 injured whilst walking, &c., on the line on the way home or to work ; and 41 were killed and 393 injured from various other causes.

Altogether, the number of persons killed and injured on railways in the United Kingdom in the course of public traffic, during the twelve months ending 31st December 1901, as reported to the Board of Trade, was as follows :—

	Total for the Year 1901.		Total for the Year 1900.		Increase.		Decrease.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>Passengers :</b>								
From accidents to trains, rolling-stock, permanent-way, &c.	—	476	16	863	—	—	16	387
By accidents from other causes ..	135	1,669	119	1,563	16	106	—	—
<b>Servants of companies or contractors :*</b>								
From accidents to trains, rolling-stock, permanent-way, &c.	8	156	24	180	—	—	16	24
By accidents from other causes ...	503	4,087	559	4,405	—	—	56	318
<b>Other Persons :</b>								
From accidents to trains, &c. ...	3	5	2	6	1	—	—	1
Persons passing over railways at level-crossings.	55	26	63	35	—	—	8	9
Trespassers (including suicides) ...	426	171	411	167	15	4	—	—
Persons on business at stations, &c., and other persons not coming in above classifications.	41	150	56	134	—	16	15	—
<b>Total ... ..</b>	<b>1,171</b>	<b>6,740</b>	<b>1,250</b>	<b>7,353</b>	<b>—</b>	<b>—</b>	<b>79</b>	<b>613</b>

\* Of contractors' servants 20 were killed and 29 injured.

In addition to the above, the Railway Companies have reported to the Board of Trade, in pursuance of the 6th Section of the Regulation of Railways Act, 1871, the following accidents which occurred upon their premises, but in which the movement of vehicles used exclusively upon railways was not concerned, namely :—13 passengers killed and 287 injured whilst ascending or descending steps at stations ; 103 injured by being struck by barrows, falling over packages, &c., on station platforms ; 4 killed and 109 injured by falling off platforms ; and 6 killed and 181 injured from other causes. Of servants of companies or contractors, 5 were killed and 1,831 injured whilst loading, unloading, or sheeting waggons ; 2 killed and 550 injured whilst moving or carrying goods in stations, sheds, &c. ; 4 killed and 226 injured whilst working at cranes or capstans ; 1 killed and 583 injured by the falling of waggon-doors, lamps, bales of goods, &c. ; 1 killed and 1,392 injured whilst attending to engines at rest in sheds, &c. ; 3 killed and 879 injured by falling off, or when getting on or off, engines or vehicles at rest ; 1 killed and 231 injured by falling off platforms on to the ballast ; 15 killed and 383 injured by falling off ladders, scaffolds, &c. ; 751 injured by stumbling whilst

walking on the line ; 1 killed and 64 injured by being trampled on or kicked by horses whilst engaged in railway work ; 12 injured by being struck by articles thrown from passing trains ; 1 killed and 746 injured by the falling of rails, sleepers, &c., when at work on the line ; 4 killed and 1,043 injured in other ways when at work on the line or in sidings ; and 16 killed and 1,806 injured from various other causes. Of persons transacting business on the companies' premises, 14 were killed and 333 injured ; and of other persons not coming within the above classifications, 15 were killed and 125 injured ; making a total in this class of accidents of 106 persons killed and 11,635 injured.

Thus the total number of personal accidents reported to the Board of Trade by the several Railway Companies during the twelve months amounts to 1,277 persons killed and 18,375 injured.

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**TABLES OF ACCIDENTS.**

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### N O T E.

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All accidents which occur in the working of railways or on railway premises to persons other than servants of the companies (described in the following Tables as "Passengers" and "Other Persons") are required to be reported to the Board of Trade, however slight the injuries may be ; but, as regards servants of the companies, only those accidents which prevent the servant injured from being employed for five hours on his ordinary work on any one of the three working days next after the accident are reported.

The following Tables therefore show the total number of persons other than servants of the companies injured from accidents arising in the working of railways or on railway premises, but only the number of servants whose injuries prevented them working for five hours on any one of the three working days next after the accident.

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TABLE No. 1.

**Summary Statement of the Number of Passengers, Servants of the Companies and of Contractors, and other Persons reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, during the Year ending 31st December 1901; with corresponding figures for the UNITED KINGDOM for the Year 1900.**

	1901.								1900.	
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.		UNITED KINGDOM.		UNITED KINGDOM.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	...	426	...	45	...	5	...	476	16	863
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	104	1,543	18	114	13	12	135	1,669	119	1,563
<b>TOTAL OF PASSENGERS ...</b>	104	1,969	18	159	13	17	135	2,145	135	2,426
<b>SERVANTS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	5	126	...	24	3	6	8	156	24	180
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	386	3,611	101	411	16	65	503	4,087	559	4,405
<b>TOTAL OF SERVANTS ...</b>	391	3,737	101	435	19	71	511	4,243	583	4,585
<b>OTHER PERSONS :—</b>										
In accidents to trains. (See Table No. 2.)	3	2	...	3	...	...	3	5	2	6
While passing over railways at level crossings. (See Table No. 3.)	46	25	6	...	3	1	55	26	63	35
While trespassing on line. (See Table No. 3.)	196	112	72	40	14	2	282	154	288	154
Suicides and attempted suicides. (See Table No. 3.)	133	12	10	5	1	...	144	17	123	13
On business at stations and sidings. (See Table No. 3.)	13	98	4	22	...	2	17	122	31	105
Miscellaneous (not included above). (See Table No. 3.)	17	22	6	5	1	1	24	28	25	29
<b>TOTAL OF OTHER PERSONS</b>	408	271	98	75	19	6	525	352	532	342
<b>GRAND TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.</b>	903	5,977	217	669	51	94	1,171	6,740	1,250	7,353

*Note.*—For the number of persons killed or injured on railway premises otherwise than through accidents to trains or the movement of railway vehicles, see Tables 8, 9, and 10.

TABLE No. 2.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, in the different CLASSES of

CLASS OF ACCIDENT.	NUMBER OF PASSENGERS.								NUMBER OF SERVANTS.							
	England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
1. Collisions between passenger trains or parts of passenger trains.	...	150	...	37	...	...	...	187	1	13	...	3	...	...	1	16
2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.	...	150	...	5	...	5	...	160	1	24	...	...	...	3	1	27
3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.	...	...	...	...	...	...	...	...	1	42	...	18	...	...	1	55
4. Collisions between trains and vehicles standing foul of the line.	...	4	...	...	...	...	...	4	...	...	...	...	...	...	...	...
5. Collisions between trains and buffer-stops, or vehicles at rest:																
(a) From trains running into stations at too high a speed.	...	64	...	...	...	...	...	64	...	2	...	...	3	...	3	2
(b) From other causes ...	...	18	...	...	...	...	...	18	...	11	...	...	...	...	...	11
6. Trains coming in contact with projections from other trains running on parallel lines.	...	2	...	...	...	...	...	2	...	...	...	...	...	...	...	...
7. Passenger trains or parts of passenger trains leaving the rails.	...	31	...	5	...	...	...	34	...	2	...	3	...	...	...	5
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	...	...	...	...	...	...	...	...	...	10	...	1	...	...	...	11
9. Trains running through gates at level-crossings, or into other obstacles.	...	4	...	...	...	...	...	4	...	7	...	3	...	2	...	12
10. The bursting of boilers or tubes, &c., of engines.	...	...	...	...	...	...	...	...	2	5	...	...	...	1	2	6
11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines).	...	...	...	...	...	...	...	...	...	9	...	1	...	...	...	10
12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13. Fires in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14. Other accidents	...	3	...	...	...	...	...	3	...	1	...	...	...	...	...	1
TOTAL	...	426	...	45	...	5	...	476	5	126	...	24	3	6	8	156

N.B.—The Board of Trade state the cause of accident as returned by the Companies, but do not guarantee

## INJURED IN ACCIDENTS TO TRAINS.

TABLE No. 2.

reported to the BOARD of TRADE by RAILWAY COMPANIES, as having been KILLED or INJURED ACCIDENTS to TRAINS, during the Year ending 31st December 1901.

NUMBER OF OTHER PERSONS.								TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.								CLASS OF ACCIDENT.
England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.		
Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	
...	...	...	...	...	...	...	...	1	163	...	40	...	...	1	203	1. Collisions between passenger trains or parts of passenger trains.
...	...	...	...	...	...	...	...	1	174	...	5	...	8	1	187	2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.
...	...	...	1	...	...	...	1	1	42	...	14	...	...	1	56	3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.
...	...	...	...	...	...	...	...	...	4	...	...	...	...	...	4	4. Collisions between trains and vehicles standing foul of the line.
...	...	...	...	...	...	...	...	...	66	...	...	3	...	3	66	5. Collisions between trains and buffer-stops, or vehicles at rest : (a) From trains running into stations at too high a speed.
...	...	...	...	...	...	...	...	...	29	...	...	...	...	...	29	(b) From other causes.
...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	2	6. Trains coming in contact with projections from other trains running on parallel lines.
...	...	...	...	...	...	...	...	...	33	...	6	...	...	...	39	7. Passenger trains or parts of passenger trains leaving the rails.
...	...	...	1	...	...	...	1	...	10	...	2	...	...	...	12	8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.
3	2	...	1	...	...	3	3	3	13	...	4	...	2	3	19	9. Trains running through gates at level-crossings, or into other obstacles.
...	...	...	...	...	...	...	...	2	5	...	...	...	1	2	6	10. The bursting of boilers or tubes, &c., of engines.
...	...	...	...	...	...	...	...	...	9	...	1	...	...	...	10	11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13. Fires in trains.
...	...	...	...	...	...	...	...	...	4	...	...	...	...	...	4	14. Other accidents.
3	2	...	3	...	...	3	5	8	534	...	72	3	11	11	637	TOTAL.

or otherwise adopt the statement, except in cases where an official inquiry has been held.

## NUMBER OF PERSONS KILLED OR INJURED FROM THE RUNNING

TABLE No. 3.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS or by the

	ENGLAND AND WALES.		SCOTLAND.	
	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>				
1. From falling between trains and platforms :				
(1) When entering trains ... ..	19	70	3	9
(2) When alighting from trains ... ..	8	68	2	8
2. From falling on to the platform, ballast, &c. :				
(1) When entering trains ... ..	...	95	...	6
(2) When alighting from trains ... ..	11	706	1	27
3. From falling off platforms and being struck or run over by trains.	11	8	4	1
4. Whilst crossing the line at stations :				
(1) Where there is either a subway or footbridge	8	6	...	1
(2) Where there is neither a subway nor footbridge	11	4	1	...
5. By the closing of carriage doors ... ..	...	325	...	31
6. From falling out of carriages during the running of trains.	15	46	6	12
7. By other accidents ... ..	21	215	1	19
TOTAL OF PASSENGERS ... ..	104	1,543	18	114
<b>SERVANTS :—</b>				
By accidents occurring during shunting operations, viz :				
1. Whilst coupling or uncoupling vehicles ...	11	490	2	64
2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines.	4	25	...	11
3. While passing over, under, or standing on buffers.	...	8	...	12
4. When getting on or off, or falling off engines, waggons, &c.	4	200	...	33
5. Whilst braking, spragging, or chocking wheels	6	350	1	23
6. Whilst attending to ground-points ... ..	1	99	...	13
7. Whilst moving vehicles by capstans, turntables, props, levers, &c.	8	409	3	19
8. By other accidents not included in the preceding.	41	476	5	46
9. From falling off trains, engines, &c., in motion ...	14	62	3	10
10. When getting on or off engines, vans, &c., during the running of trains.	4	231	3	23
11. By coming in contact with over-bridges or erections on the sides of the line.	5	44	3	10
12. Whilst attending to the machinery, &c., of engines in motion.	...	332	...	28
13. Whilst working on the permanent-way, sidings, &c.	68	105	25	12
14. Whilst attending to gates at level-crossings ...	1	1	2	...
15. Whilst walking, crossing, or standing on the line on duty :				
(1) At stations ... ..	95	204	18	30
(2) At other parts of the line ... ..	33	54	16	6
16. From being caught between vehicles ... ..	16	90	3	19
17. From falling or being caught between trains and platforms, walls, &c.	7	52	2	10
18. Whilst walking, &c., along the line to or from work	37	32	6	3
19. Miscellaneous ... ..	31	347	9	39
TOTAL OF SERVANTS ... ..	386	3,611	101	411
<b>OTHER PERSONS :—</b>				
1. Whilst passing over railways at level-crossings ...	46	25	6	...
2. Whilst trespassing on line ... ..	196	112	72	40
3. Suicides and attempted suicides ... ..	133	12	10	5
4. On business at stations and sidings ... ..	13	98	4	22
5. Miscellaneous (not included above) ... ..	17	22	6	5
TOTAL OF OTHER PERSONS ... ..	405	269	98	72
GRAND TOTAL ... ..	895	5,423	217	597

N.B.—The Board of Trade state the cause of the accident as returned by the Companies, but do not

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 3.

reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED  
MOVEMENT of RAILWAY VEHICLES during the Year ending 31st DECEMBER, 1901.

IRELAND.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
...	...	22	79	<b>PASSENGERS :—</b>
3	...	13	76	
...	1	...	102	1. From falling between trains and platforms :
2	2	14	735	(1) When entering trains.
3	...	18	9	(2) When alighting from trains.
1	...	9	7	2. From falling on to the platform, ballast, &c. :
...	...	12	4	(1) When entering trains.
...	...	...	356	(2) When alighting from trains.
2	6	23	64	3. From falling off platforms and being struck or run over by trains.
2	3	24	237	4. Whilst crossing the line at stations :
13	12	135	1,669	(1) Where there is either a subway or footbridge.
				(2) Where there is neither a subway nor footbridge.
				5. By the closing of carriage doors.
				6. From falling out of carriages during the running of trains.
				7. By other accidents.
				<b>TOTAL OF PASSENGERS.</b>
				<b>SERVANTS :—</b>
1	17	14	571	By accidents occurring during shunting operations,
...	...	4	36	viz. :
...	...	...	20	1. Whilst coupling or uncoupling vehicles.
...	1	4	234	2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines.
...	5	7	378	3. While passing over, under, or standing on buffers.
...	...	1	112	4. When getting on or off, or falling off engines, waggons, &c.
...	5	11	433	5. Whilst braking, spragging, or chocking wheels.
1	3	47	525	6. Whilst attending to ground-points.
3	6	20	78	7. Whilst moving vehicles by capstans, turn-tables, props, levers, &c.
3	6	10	260	8. By other accidents not included in the preceding.
1	2	9	56	9. From falling off trains, engines, &c., in motion.
...	2	..	362	10. When getting on or off engines, vans, &c., during the running of trains.
2	...	95	117	11. By coming in contact with over-bridges or erections on the sides of the line.
...	2	3	3	12. Whilst attending to, the machinery, &c., of engines in motion.
1	6	114	240	13. Whilst working on the permanent-way, sidings, &c.
1	1	50	61	14. Whilst attending to gates at level-crossings.
1	...	20	109	15. Whilst walking, crossing, or standing on the line on duty :
...	2	9	64	(1) At stations.
1	...	44	35	(2) At other parts of the line.
1	7	41	393	16. From being caught between vehicles.
16	65	503	4,087	17. From falling or being caught between trains and platforms, walls, &c.
				18. Whilst walking, &c., along the line to or from work
				19. Miscellaneous.
				<b>TOTAL OF SERVANTS.</b>
				<b>OTHER PERSONS :—</b>
3	1	55	26	1. Whilst passing over railways at level-crossings.
14	2	282	154	2. Whilst trespassing on line.
1	...	144	17	3. Suicides and attempted suicides.
...	2	17	122	4. On business at stations and sidings.
1	1	24	28	5. Miscellaneous (not included above).
19	6	522	347	<b>TOTAL OF OTHER PERSONS.</b>
48	83	1,160	6,103	<b>GRAND TOTAL.</b>

guarantee or otherwise adopt the statement, except in cases where an official inquiry has been held.

TABLE No. 4.

NUMBER of PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the

NAME OF COMPANY.	1		2		3		4		5				6		7		8	
	Collisions between Passenger Trains or Parts of Passenger Trains.		Collisions between Passenger Trains and Goods or Mineral Trains, Light-Engines, &c.		Collisions between Goods Trains or Parts of Goods Trains, Light-Engines, &c		Collisions between Trains and Vehicles standing foul of the Line.		Collisions between Trains and Buffer-Stops, or Vehicles at rest.				Trains coming in Contact with Projections from other Trains running on Parallel Lines.		Passenger Trains or Parts of Passenger Trains leaving the Rails.		Goods Trains or Parts of Goods Trains, Light-Engines, &c. leaving the Rails.	
									(a.) From Trains running into Stations at too high a speed.		(b.) From other Causes.							
	K*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
ENGLAND AND WALES.																		
Barry ... ..	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Carlisle Goods Traffic Committee.	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cockermouth, Keswick and Penrith.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ... ..	...	5	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...
Great Central ... ..	...	...	...	13	...	2	...	...	...	...	...	2	...	...	...	...	...	...
Great Eastern ... ..	...	11	...	9	...	3	...	3	...	9	...	5	...	...	...	7	...	...
Great Northern ... ..	...	13	...	6	...	3	...	...	...	3	...	4	...	...	...	3	...	...
Great Western ... ..	...	2	...	2	...	2	...	...	...	...	...	1	...	...	...	...	...	3
Hull, Barnsley and West Riding Junction.	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Lancashire and Yorkshire...	...	1	...	25	...	7	...	...	...	...	...	4	...	...	...	...	...	...
Lancashire and Yorkshire and London and North-Western Joint.	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...
London and North-Western	...	...	...	4	...	7	...	...	...	2	...	8	...	...	...	2	...	1
London and North-Western and Midland Joint.	...	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western	...	32	1	70	...	1	...	...	...	1	...	...	...	...	...	...	...	...
London, Brighton, and South Coast.	...	3	...	1	...	4	...	1	...	...	...	...	...	...	...	...	...	1
Manchester, South Junction and Altrincham.	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey and Wirral Joint ...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ... ..	...	15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Midland ... ..	...	...	...	6	...	6	...	...	...	19	...	...	...	...	...	8	...	2
Midland and South-Western Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Normanton Joint Station	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
North-Eastern ... ..	1	39	...	9	1	2	...	...	...	29	...	4	...	2	...	9	...	1
North Staffordshire	...	...	...	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhondda and Swansea Bay	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Rother Valley ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
South-Eastern and Chatham	...	21	...	2	...	...	...	...	...	2	...	...	...	...	...	1	...	...
South Wales Mineral ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Taff Vale ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West London Extension Joint.	...	...	...	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wigan Junction ... ..	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES	1	163	1	174	1	42	...	4	...	66	...	29	...	2	...	33	...	10
SCOTLAND.																		
Caledonian ... ..	...	22	...	2	...	11	...	...	...	...	...	...	...	...	...	2	...	1
Dumbarton and Balloch Joint.	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great North of Scotland ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North British ... ..	...	18	...	...	...	2	...	...	...	...	...	...	...	...	...	4	...	1
Perth General Station ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND	...	40	...	5	...	14	...	...	...	...	...	...	...	...	...	6	...	2
IRELAND.																		
Great Northern ... ..	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Southern and Western	...	...	...	6	...	...	...	...	...	3	...	...	...	...	...	...	...	...
TOTAL, IRELAND	...	...	...	8	...	...	...	...	...	3	...	...	...	...	...	...	...	...
TOTAL, UNITED KINGDOM	1	203	1	187	1	56	...	4	3	66	...	29	...	2	...	39	...	12

NOTE.—In the above Table the persons killed and injured from accidents are entered against the Company on whose  
 \* Killed.  
 † Injured.



## INJURED IN ACCIDENTS TO TRAINS.

TABLE No. 4.

INJURED in the different CLASSES of ACCIDENTS occurring on the LINES of the several RAILWAY COMPANIES COMPANIES during the Year ending 31st December 1901.

9 Trains running through Gates at Level Crossings or into other Obstacles.		10 The bursting of Boilers or Tubes, &c., of Engines.		11 Accidents arising from the Failure of Rolling-Stock (including Failure of Wheels, Tyres, Axles, &c.).		12 Accidents arising from the Failure of Permanent-Way (including Failure of Tunnels, Bridges, Rails, &c.).		13 Fires in Trains.		14 Other Accidents.		Total Number of Persons of all Classes.		Number of Passengers and others.		Number of Servants.		NAME OF COMPANY.
K.*	I.†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	
ENGLAND AND WALES.																		
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Barry.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Carlisle Goods Traffic Committee.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Cheshire Lines.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Cockermouth, Keswick and Penrith.
...	...	...	...	...	...	...	...	...	...	...	...	...	5	...	5	...	...	Furness.
...	...	...	...	...	...	...	...	...	...	...	...	...	17	...	12	...	5	Great Central.
...	...	...	1	...	1	...	...	...	...	...	...	...	49	...	42	...	7	Great Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	32	...	23	...	9	Great Northern.
...	2	...	...	...	...	...	...	...	...	...	...	...	12	...	5	...	7	Great Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Hull, Barnsley and West Riding Junction.
...	3	2	1	...	...	...	...	...	...	...	1	2	42	...	20	2	22	Lancashire and Yorkshire.
...	...	...	...	...	...	...	...	...	...	...	...	...	7	...	7	...	...	Lancashire and Yorkshire and London and North-Western Joint.
...	...	...	1	...	1	...	...	...	...	...	...	...	26	...	10	...	16	London and North-Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	9	...	5	...	4	London and North-Western and Midland Joint.
2	2	...	...	...	...	...	...	...	...	...	...	3	106	2	102	1	4	London and South-Western.
...	...	...	...	...	1	...	...	...	...	...	3	...	14	...	7	...	7	London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	Manchester, South Junction and Altrincham.
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...	...	Mersey and Wirral Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	16	...	15	...	1	Metropolitan.
...	1	...	...	...	2	...	...	...	...	...	...	...	44	...	27	...	17	Midland.
...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	Midland and South-Western Junction.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Normanton Joint Station.
1	2	...	...	...	3	...	...	...	...	...	...	3	100	1	88	2	12	North-Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	8	...	8	...	...	North Staffordshire.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Rhondda and Swansea Bay.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Rother Valley.
...	...	...	2	...	1	...	...	...	...	...	...	...	29	...	25	...	4	South-Eastern and Chatham.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	South Wales Mineral.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Taff Vale.
...	...	...	...	...	...	...	...	...	...	...	...	...	19	...	17	...	2	West London Extension Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	Wigan Junction.
3	13	2	5	...	9	...	...	...	...	...	4	8	554	3	423	5	126	(TOTAL ENGLAND AND WALES.
SCOTLAND.																		
...	3	...	...	...	...	...	...	...	...	...	...	...	41	...	24	...	17	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Dumbarton and Balloch Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	Glasgow and South-Western.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Great North of Scotland.
...	...	...	...	...	1	...	...	...	...	...	...	...	26	...	21	...	5	North British.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Perth General Station.
...	4	...	...	...	1	...	...	...	...	...	...	...	72	...	48	...	24	TOTAL, SCOTLAND.
IRELAND.																		
...	2	...	1	...	...	...	...	...	...	...	...	...	5	...	...	...	5	Great Northern.
...	...	...	...	...	...	...	...	...	...	...	...	3	6	...	5	3	1	Great Southern and Western.
...	2	...	1	...	...	...	...	...	...	...	...	3	11	...	5	3	6	TOTAL, IRELAND.
3	19	2	6	...	10	...	...	...	...	...	4	11	637	3	481	8	156	TOTAL, UNITED KINGDOM.

lines the accidents occurred, except in cases of injuries arising from the accidents enumerated in Columns Nos. 10 and 11.

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several  
during the Year

## A. PASSENGERS

NAME OF COMPANY.	1				2				3		4				5		6		7		Total.	
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.		Whilst crossing the line at Stations.				By the closing of Carriage Doors.		From falling out of Carriages during the running of Trains.		By other Accidents.			
	(a)		(b)		(a)		(b)		(a)		(b)											
	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.												
	K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
ENGLAND AND WALES.																						
Central London .. ..	1				1		1		1											1	3	
Cheshire Lines .. ..											1		1				1	1		3	1	
City and South London ..	1																				1	
Furness .. ..								3		1					5		1		2		12	
Garstang and Knot End ..								1													1	
Great Central .. ..	3		5		1		10				1				8			1	3	1	31	
Great Eastern .. ..	4	7		6		12	1	56	2	1	1				8	1	3	4	26	13	119	
Great Northern .. ..		2		3		2	2	10			1		1		2	2	2	1	4	7	25	
Great Western .. ..	1	4		5				47	1	1	2		2	1	12	4	6		22	10	98	
Lancashire and Yorkshire ...	3	3	1	1		1	1	13							12		2		2	5	34	
Lancashire and Yorkshire and London and North-Western Joint.						1		5							3				2		11	
Lancashire, Derbyshire, and East Coast.								1													1	
Liverpool Overhead... ..						1															1	
Liverpool, St. Helen's and South Lancashire.	1																				1	
London and India Docks ..	1																				1	
London and North-Western	3	6	2	8		6	2	144	2	2	2		3		128	2	6	4	48	20	348	
London and North-Western and Cockermonth Keswick and Penrith Joint.								1													1	
London and North-Western and Great Western Joint.			1	1				7							7		1		5	1	21	
London and North-Western and Midland Joint.	1		1		1				1						1			1	2	2	6	
London and North-Western and North Staffordshire Joint.						1															1	
London and South-Western		6	2	5		8	3	148							20	1	5		16	6	208	
London and South-Western and London, Brighton and South Coast Joint.								1													1	
London, Brighton, and South Coast.				4		3	1	18	1			1			3		1		1	2	31	
London, Tilbury, and South-end.	4					13	1	17				1		1	2		2	1	3	2	43	
Macclesfield Joint Station...															1						1	
Maryport and Carlisle ..																		1	2	1	2	
Mersey .. ..								2													4	
Metropolitan... ..	1	1		4		6		5										1	3	2	19	
Metropolitan and Great Western Joint.						1		3							3				1		8	
Metropolitan and Metropolitan District Joint.	2		2					2		2									1		9	
Metropolitan District ..						4		14							3			1		1	21	
Midland .. ..	4	2	5		8		39				1	1		1	38	4	2	1	30	8	128	
Midland and Great Northern Joint.																	1				1	

\* Killed.

NOTE.—In the above Table the persons killed and injured  
† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st December, 1901.

## A. PASSENGERS.

NAME OF COMPANY.	1 From falling between Trains and Platforms.				2 From falling on to the Platform, Ballast, &c.				3 From falling off Platforms and being struck or run over by Trains.		4 Whilst crossing the Line at Stations.				5 By the closing of Carriage Doors.		6 From falling out of Carriages during the running of Trains.		7 By other Accidents		Total.	
	(a) When entering Trains.		(b) When alighting from Trains.		(a) When entering Trains.		(b) When alighting from Trains.				(a) Where there is either a Subway or Foot- bridge.		(b) Where there is neither a Subway nor Foot- bridge.									
	K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
ENGLAND AND WALES— cont.																						
Midland and Great Western Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Midland and Lancashire and Yorkshire Joint.	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
Midland and North-Eastern Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	
South and Brecon ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Normanton Joint Station ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	
North and South-Western Junction.	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	5	
North-Eastern ...	2	2	...	8	...	1	51	1	...	2	1	1	...	48	1	6	...	17	5	136		
North-Eastern and London and North-Western Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
North London ...	...	4	...	3	...	19	54	...	1	...	...	...	...	12	...	1	1	14	1	108		
North Staffordshire ...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...		
Nottingham Joint Station...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Oldham, Ashton-under-Lyne and Guide Bridge Junction.	...	...	...	...	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	4	
Plymouth, Devonport and South-Western Junction.	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	
Rhondda and Swansea Bay	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1		
Rhymney ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Sheffield and Midland Joint	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2	3	3		
Somerset and Dorset Joint...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...		
South-Eastern and Chatham Taff Vale ...	...	3	...	4	...	1	30	1	...	...	1	...	...	1	...	2	2	5	4	46		
Tottenham and Forest Gate Joint.	...	...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	...	1	...	4		
Tottenham and Hampstead Joint.	...	...	...	...	1	...	10	...	...	...	...	...	...	1	...	...	...	2	...	14		
Waterloo and City ...	...	12	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13		
West London Extension Joint	...	...	...	...	1	...	2	...	...	...	...	...	...	1	...	...	...	...	...	4		
Wirral ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
Wrexham, Mold and Con- nah's Quay.	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	1	1		
TOTAL, ENGLAND AND WALES ...	19	70	8	68	...	95	11	706	11	8	8	6	11	4	...	325	15	46	21	215	104	1,543
SCOTLAND.																						
Caledonian ...	2	5	...	3	...	2	1	12	3	...	...	...	...	...	14	3	5	...	5	9	46	
Dumbarton and Balloch Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	
Glasgow and Paisley Joint...	...	...	2	...	...	...	...	1	...	...	...	...	...	...	6	...	...	...	1	...	10	
Glasgow and South-Western	...	1	...	1	...	...	1	...	...	...	...	...	...	...	3	1	...	1	3	2	9	
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	3	...	...	...	...	1	...	...	3	...	...	...	1	1	7		
Glasgow District Subway ...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
Great North of Scotland ...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	1	2	...	...	1	4	
Highland ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	1	...	...	4	
North British ...	1	3	2	2	...	3	...	8	1	...	...	1	...	...	5	1	3	...	7	5	32	
TOTAL, SCOTLAND ...	3	9	2	8	...	6	1	27	4	1	...	1	1	...	31	6	12	1	19	18	114	
IRELAND.																						
Belfast and County Down...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
Belfast and Northern Coun- ties.	...	...	1	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	1	2	
Cavan and Leitrim ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
Dublin, Wicklow and Wex- ford.	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	1	...	3	...	
Great Northern ...	...	...	1	...	...	1	...	2	...	...	...	...	...	...	...	1	3	1	...	6	3	
Great Southern and Western	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	3	...	...	5	
Midland Great Western ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	1	2	
TOTAL, IRELAND ...	...	...	3	...	...	1	2	2	3	...	1	...	...	...	...	2	6	2	3	13	12	
TOTAL, UNITED KINGDOM...	22	79	13	76	...	102	14	735	18	9	9	7	12	4	...	356	23	64	24	237	135	1,669

are entered against the Company on whose line the injury was received.

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several  
during the Year

## B. SERVANTS of COMPANIES and CONTRACTORS.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		9.		10.	
	Whilst coupling or uncoupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or chocking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.		By other Accidents not included in the preceding.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
ENGLAND AND WALES.																				
Alexandra (Newport) Dock ...	...	...	...	...	...	1	...	2	...	1	...	...	...	...	...	...	...	...	...	...
Barry ...	2	4	...	...	...	...	...	3	...	4	...	1	...	1	...	...	...	...	...	1
Brecon and Merthyr ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Cambrian ...	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	1	...	...	...	1
Cardiff ...	1	1	...	...	...	1	...	...	...	...	...	...	...	...	2	...	...	...	...	...
Central London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	...	1	...	...	...	...	...	1	...	1	...	...	...	...	...	3	...	...	...	1
City and South London ...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...
Corris ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
East and West Junction ...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
East London Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Festiniog ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ...	...	6	...	...	...	...	...	2	...	1	...	1	...	2	...	2	...	...	...	2
Great Central ...	...	13	...	1	...	...	...	10	1	17	...	3	...	7	...	13	1	3	...	11
Great Eastern ...	...	27	...	2	...	...	...	5	1	16	...	8	2	37	2	30	...	3	...	9
Great Northern ...	...	40	...	2	...	...	1	12	...	27	...	7	...	27	5	21	...	2	...	16
Great Northern and Great Eastern Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Great Western ...	2	51	1	2	...	...	1	24	...	29	1	11	2	31	9	63	2	6	...	23
Hull, Barnsley, and West Riding Junction.	...	2	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...
Isle of Wight ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Isle of Wight Central ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire ...	...	41	...	1	...	...	...	13	2	31	...	4	1	38	3	31	2	7	2	2
Lancashire and Yorkshire and London and North-Western Joint.	...	2	...	...	...	...	...	1	...	1	...	...	...	11	...	1	...	...	...	2
Lancashire, Derbyshire and East Coast.	...	1	...	...	...	...	...	1	...	2	...	...	...	1	...	1	...	...	...	1
Liverpool Overhead ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Liverpool, St. Helens and South Lancashire.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
London and India Docks ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and North-Western ...	1	114	1	3	...	...	1	29	1	87	...	24	...	130	9	135	...	12	...	40
London and North-Western and Great Western Joint.	...	4	...	...	...	...	...	1	...	2	...	...	...	4	...	4	...	...	...	1
London and North-Western and Midland Joint.	...	1	...	...	...	...	...	2	...	...	...	...	...	1	...	...	...	...	...	...
London and North-Western and North Staffordshire Joint.	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	1	...	...	...	...
London and South-Western ...	1	23	...	...	...	...	1	7	1	17	...	1	1	14	2	21	1	2	...	9

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—continued.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st December 1901—continued.

## B. SERVANTS of COMPANIES and CONTRACTORS.

11.		12.		13.		14.		15.				16.		17.		18.		19.			
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous		TOTAL.	
								(a.)		(b.)											
At Stations.								At other Parts of the Line.													
K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K	L
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	4
...	...	...	1	1	1	...	...	...	2	...	...	...	...	1	...	...	...	...	...	3	19
...	...	...	...	...	...	...	...	...	1	1	1	...	...	...	1	...	...	...	...	1	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	2	1	9
...	...	...	...	1	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	5	3
...	2	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	1	...	5
...	...	...	...	1	1	...	...	...	2	...	1	3	1	2	...	...	2	...	3	7	16
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	1	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	17
1	...	...	6	4	1	...	...	4	3	1	...	...	1	...	...	2	...	...	7	14	96
...	1	...	24	4	12	...	...	7	10	2	1	1	2	...	4	2	1	2	27	23	219
...	3	...	5	2	3	...	...	11	24	2	3	...	12	...	5	2	2	2	23	25	234
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
...	4	...	38	6	6	1	...	10	15	5	5	2	8	1	6	4	2	1	26	48	350
...	...	...	3	...	...	...	...	2	...	...	...	...	...	...	...	1	...	2	...	5	7
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	1	...	26	10	15	...	...	7	25	1	3	...	6	...	3	1	6	2	36	31	289
...	...	...	...	1	...	...	...	...	2	...	...	1	2	...	...	...	...	...	...	2	22
...	...	...	...	...	...	...	1	...	1	...	...	...	1	...	...	...	...	...	1	...	11
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
1	7	...	102	7	11	...	...	11	29	3	6	1	15	...	3	5	7	5	75	46	829
...	...	...	...	1	2	...	...	...	2	3	...	...	2	...	...	...	...	1	3	5	25
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4
...	4	...	9	5	6	...	...	3	12	1	4	1	5	...	5	2	...	1	20	20	159

\* Killed.

† Injured.

NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Year

B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	Whilst coupling or uncoupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or chocking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.		By other Accidents not included in the preceding.		K.	I.	K.	I.
ENGLAND AND WALES—cont.																				
London and South Western and London, Brighton, and South Coast Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London, Brighton, and South Coast	...	14	...	2	...	...	3	...	5	...	...	...	14	1	13	2	5	1	6	...
London, Tilbury, and Southend	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...
Manchester, South Junction, and Altrincham.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maryport and Carlisle...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey and Wirral Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ...	...	4	...	...	...	...	...	1	...	1	...	2	...	...	...	...	...	...	1	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Midland...	1	47	...	2	...	1	35	...	51	...	13	...	44	3	65	2	5	...	64	...
Midland and Great Northern Joint	...	3	...	...	...	...	...	...	1	...	...	...	2	...	2	...	1	...	1	...
Midland and Great Western Joint	...	2	...	...	1	...	...	...	1	...	...	1	...	...	...	...	...	...	1	...
Midland and Lancashire and Yorkshire Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Midland and South-Western Junction	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Neath and Brecon	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
Normanton Joint Station	...	1	...	...	...	...	...	...	3	...	...	...	8	...	1	...	...	...	...	...
North-Eastern ...	1	39	1	7	...	2	27	...	27	...	20	...	24	2	46	1	6	...	29	...
North-Eastern and London and North-Western Joint.	...	2	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	1	...
North London ...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...
North Staffordshire ...	1	1	...	...	...	...	4	...	5	...	...	...	1	...	1	...	...	...	2	...
North Wales Narrow Gauge...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Otley and Ilkley Joint	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Port Talbot	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhymney	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Severn and Wye Joint	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Sheffield and Midland Joint	...	1	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
South-Eastern and Chatham...	1	18	...	...	...	...	5	...	2	...	1	1	5	2	9	1	6	...	6	...
Stalybridge Joint Station	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Swinton and Knottingley Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Taff Vale	...	8	...	1	...	2	8	...	10	...	4	...	...	...	5	...	2	...	5	...

\* Killed. † Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued.*RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st December 1901—*continued.*B. SERVANTS of COMPANIES and CONTRACTORS—*continued.*

11. By coming in contact with Over-bridges or Erections on the Sides of the Line.		12. Whilst attending to the Machinery, &c., of Engines in Motion.		13. Whilst working on the Permanent-Way, Sidings, &c.		14. Whilst attending to Gates at Level Crossings.		15. Whilst walking, crossing, or standing on the Line on Duty.				16. From being caught between Vehicles.		17. From falling or being caught between Trains and Platforms, Walls, &c.		18. Whilst walking, &c., along the Line to or from Work.		19. Miscellaneous.		TOTAL.	
K*	I†	K.	I.	K.	I.	K.	I.	(a.) At Stations.		(b.) At other Parts of the Line.		K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
								K.	I.	K.	I.										
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
...	1	...	2	7	8	...	...	6	6	...	2	...	...	1	3	1	1	3	6	22	91
...	...	...	...	...	...	...	...	1	1	1	2	...	...	1	...	...	...	...	1	4	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
...	1	...	2	1	3	...	...	1	3	...	3	...	...	...	2	1	...	...	5	3	28
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	2
...	1	...	...	...	1	...	...	...	...	...	...	1	...	...	2	...	...	...	4	2	10
3	7	...	62	8	9	...	...	13	35	3	10	4	18	...	5	8	8	5	46	50	517
...	...	...	1	...	1	...	...	...	...	...	...	1	3	...	1	...	...	...	2	1	18
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	5
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	1	...	1	2	2	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2
...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
...	8	...	26	3	12	...	...	9	8	2	7	1	8	...	5	1	3	2	31	23	335
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	1	1	1	...	...	...	2	...	...	...	...	...	...	...	...	...	3	2	14
...	...	...	4	1	...	...	...	...	4	...	1	1	1	...	...	1	...	...	...	4	24
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	2	3
...	2	...	4	4	9	...	...	4	12	7	2	1	1	2	3	1	1	...	11	24	97
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	12	...	...	...	...	...	...	...	...	...	1	1	...	...	...	1	5	2	63

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Year

## B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
<b>ENGLAND AND WALES—cont.</b>																				
Wrexham, Mold and Connah's Quay	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Railway Clearing House	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES	11	490	4	25	...	8	4	200	6	350	1	99	8	409	41	476	14	62	4	231
<b>SCOTLAND.</b>																				
Caledonian	1	18	...	3	...	9	...	17	1	7	...	2	1	9	3	19	1	4	1	6
Dumbarton and Balloch Joint	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Dundee and Arbroath Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow and Paisley Joint	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...
Glasgow and South-Western	...	5	...	1	...	...	...	1	...	...	...	...	...	...	...	1	...	1	...	5
Glasgow, Barrhead and Kilmarnock Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great North of Scotland	...	1	...	1	...	...	...	...	...	...	...	...	1	1	...	1	...	1	...	1
Highland	...	2	...	...	...	...	...	2	...	1	...	...	1	2	...	1	2	...	...	..
Kilsyth and Bonnybridge	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North British	1	37	...	6	...	3	...	12	...	14	...	10	...	7	2	23	...	4	2	11
Portpatrick and Wigtownshire Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Railway Clearing House	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND	2	64	...	11	...	12	...	33	1	23	...	13	3	19	5	46	3	10	3	23
<b>IRELAND.</b>																				
Belfast and County Down	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties	...	7	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...
Cavan and Leitrim	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cork, Bandon and South Coast	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Donegal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dublin, Wicklow and Wexford	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Great Northern	1	3	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	2	...	2
Great Southern and Western	..	4	...	...	...	...	...	1	...	...	...	...	...	1	...	...	1	1	2	3
Londonderry and Lough Swilly	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Midland Great Western	...	1	...	...	...	...	...	...	...	3	...	...	...	3	...	1	1	2	...	1
Sligo, Leitrim and Northern Counties	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
TOTAL, IRELAND	1	17	...	...	...	...	...	1	...	5	...	...	...	5	1	3	3	6	3	6
TOTAL, UNITED KINGDOM	14	571	4	36	...	20	4	234	7	378	1	112	11	433	47	525	20	78	10	260

\* Killed.

† Injured.



## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—continued.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st December 1901—continued.

## B. SERVANTS of COMPANIES and CONTRACTORS—continued.

11.		12.		13.		14.		15.				16.		17.		18.		19.		TOTAL.	
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.			
								(a.) At Stations.		(b.) At other Parts of the Line.											
K*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1
5	44	...	332	68	105	1	1	95	204	33	54	16	90	7	52	37	32	31	347	386	3,611
2	4	...	8	7	3	...	...	5	9	8	3	1	2	...	3	4	2	3	17	38	145
...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	1
...	...	...	...	2	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	3	1
...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	4
...	2	...	1	6	...	1	...	4	3	...	...	1	1	...	2	...	...	3	2	15	25
...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	2	...
...	...	...	...	1	...	...	...	1	...	...	...	...	2	...	...	1	...	...	1	4	9
...	1	...	1	1	...	...	...	...	1	1	...	...	...	...	1	1	...	...	3	6	15
...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
1	3	...	17	8	8	1	...	6	17	3	2	1	14	1	4	...	1	3	16	29	209
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...
3	10	...	28	25	12	2	...	18	30	16	6	3	19	2	10	6	3	9	39	101	411
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	1	...	2	1	...	...	...	...	...	...	...	3	1	15	15
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	2	2
...	1	...	2	...	...	...	...	...	1	...	...	1	...	...	...	1	...	1	1	4	14
...	...	...	...	1	...	...	1	1	1	...	1	...	...	...	1	...	...	2	5	16	16
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	12
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
1	2	...	2	2	...	...	2	1	6	1	1	1	...	...	2	1	...	1	7	16	65
9	56	...	362	95	117	3	3	114	240	50	61	20	109	9	64	44	35	41	393	503	4,087

\* Killed.

† Injured.

**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE No. 5—continued.**

**NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Year ending 31st December 1901—continued.**

**C. OTHER PERSONS.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres- passers.		Suicides and attempted Suicides.		Persons on Business at Stations and Sidings.		Miscel- laneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES.																		
Barry ... ..	...	...	1	...	...	...	1	...	...	...	...	1	1	...	...	2	1	
Cambrian ... ..	...	...	...	1	...	...	...	1	...	...	...	...	1	...	...	...	2	
Cardiff ... ..	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2	
Central London ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	
Cheshire Lines ... ..	...	...	...	...	...	...	...	2	2	3	...	...	...	...	1	5	3	
City and South London ... ..	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	
East and West Yorkshire Union.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	
East London Joint... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	
Festiniog ... ..	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	
Furness ... ..	...	...	...	...	...	...	...	...	2	...	...	...	1	...	...	...	3	
Great Central ... ..	1	1	...	...	...	...	1	1	8	5	2	...	...	3	1	1	12	10
Great Eastern ... ..	4	1	1	1	...	...	5	2	10	3	13	1	...	9	2	2	30	17
Great Northern ... ..	3	...	...	...	...	1	3	1	7	4	6	...	...	7	...	1	16	13
Great Northern and Great Eastern Joint.	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	1	...	
Great Northern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	
Great Western ... ..	2	...	...	1	5	1	7	2	30	23	25	...	2	8	1	5	65	38
Great Western and London and South-Western Joint	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Isle of Wight ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	
Lancashire and Yorkshire...	1	...	...	...	2	...	3	...	10	6	8	...	1	2	4	1	26	9
Lancashire and Yorkshire and London and North- Western Joint.	...	...	...	...	...	...	...	...	2	...	2	...	...	2	...	1	4	3
Lancashire, Derbyshire, and East Coast.	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	1	2	2
Llanelly and Mynydd Mawr	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	
London and India Docks ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1	1
London and North-Western	1	3	2	...	...	...	3	3	21	12	10	2	3	14	1	1	38	32
London and North-Western and Furness Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	
London and North-Western and Great Western Joint.	...	...	...	...	...	...	...	...	2	...	2	...	...	1	1	...	5	1
London and North-Western and North Staffordshire Joint.	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	1	1
London and South-Western	...	...	...	...	2	...	2	...	7	3	7	...	2	18	2	2	20	23
London and South-Western and London, Brighton, and South Coast Joint.	...	...	1	...	...	...	1	...	1	...	...	...	...	...	...	2	...	
London, Brighton, and South Coast.	1	1	...	...	...	...	1	1	8	3	6	...	...	3	1	...	16	7
London, Tilbury, and Southend.	...	...	...	...	...	...	...	...	3	1	1	...	...	1	1	...	5	3
Manchester Ship Canal ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Metropolitan ... ..	...	...	...	...	...	...	...	...	2	...	1	1	...	...	...	1	3	2
Metropolitan and Great Western Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...

\* Killed.

† Injured.

**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE No. 5—continued.**

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Year ending 31st December 1901—continued.

**C. OTHER PERSONS—continued.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres- passers.		Suicides and attempted Suicides.		Persons on Business at Sidings and Stations.		Miscel- laneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.		
ENGLAND AND WALES—cont.																		
Metropolitan and Metro- politan District Joint.	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	1	2
Metropolitan District	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	2	1
Midland	...	1	...	...	...	1	...	2	20	14	17	...	1	7	...	1	38	24
Midland and Great Northern Joint.	...	...	1	1	1	...	2	1	1	...	...	...	...	1	...	...	3	2
Midland and South-Western Junction.	...	...	1	...	...	...	1	...	1	...	...	...	...	3	...	...	2	3
North and Brecon	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
North-Eastern	3	4	3	2	3	1	9	7	33	8	7	...	...	8	...	2	49	25
North London	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	1	2
North Staffordshire	...	...	...	1	...	...	...	1	2	5	3	...	...	...	...	...	5	6
Port Talbot	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Rhondda and Swansea Bay	...	...	...	1	...	...	...	1	1	...	...	1	...	...	...	...	1	2
Rhymney	...	...	...	...	...	...	...	...	1	4	...	...	...	...	...	...	1	4
Rhymney and Great West- ern Joint.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Severn and Wye Joint	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Sheffield and Midland Joint.	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	1
Somerset and Dorset Joint	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	1	2
South-Eastern and Chat- ham.	2	...	...	1	3	...	5	1	9	3	11	3	...	4	1	...	26	11
South-Eastern and Chatham and London, Brighton and South Coast Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
South Shields, Marsden and Whitburn.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Swansea and Mumbles	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Taff Vale	...	...	...	...	1	...	1	...	7	3	...	...	...	...	...	...	8	3
Warrington	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
TOTAL, ENGLAND AND WALES	18	11	10	10	18	4	46	25	196	112	133	12	13	98	17	22	405	269
SCOTLAND.																		
Caledonian	...	...	...	...	...	...	...	...	42	16	4	1	1	10	...	1	47	28
Dumbarton and Balloch Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Dundee and Arbroath Joint	...	...	...	...	1	...	1	...	1	1	...	...	...	...	...	...	2	1
Glasgow and Paisley Joint	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Glasgow and South-Western	...	...	...	...	...	...	...	...	6	2	2	2	...	...	1	1	9	5
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...	1	4	1
Grangemouth Branch	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Great North of Scotland	1	...	...	...	...	...	1	...	1	3	...	...	1	1	...	1	3	5
Highland	1	...	...	...	...	...	1	...	1	2	...	...	...	2	...	4	2	
North British	1	...	2	...	...	...	3	...	16	14	3	2	2	11	3	1	27	28
Portpatrick and Wigtown- shire Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
TOTAL, SCOTLAND	3	...	2	...	1	...	6	...	72	40	10	5	4	22	6	5	98	72
IRELAND.																		
Belfast and County Down	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Belfast and Northern Counties.	...	...	1	...	...	...	1	...	1	...	1	...	...	...	...	...	3	...
Cavan and Leitrim	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Cork, Blackrock, and Passage.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Dublin, Wicklow, and Wexford.	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Great Northern	...	...	1	...	...	...	1	...	2	...	...	...	...	...	...	...	3	...
Great Southern and Western	...	...	...	1	...	...	...	1	8	1	...	...	...	1	1	...	9	3
Midland Great Western	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2	...
West Clare	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...
TOTAL, IRELAND	1	...	2	1	...	...	3	1	14	2	1	...	...	2	1	1	19	6
TOTAL, UNITED KING- DOM	22	11	14	11	19	4	55	26	282	154	144	17	17	122	24	28	522	347

\* Killed.

† Injured.

NATURE OF INJURIES TO PERSONS FROM ACCIDENTS TO TRAINS AND FROM THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 6.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES during the Year ending 31st December, 1901, classified according to the NATURE of the INJURIES; with figures for the Year 1900.

		NATURE OF INJURIES.																Total Injured.	
		Fatal.	Injuries resulting in Loss of			Fractures of				Dis-locations.	Internal In-juries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to System.		Miscellaneous In-juries.
			Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.						
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	
<b>Passengers :</b>																			
1901	...	135	10	3	2	6	48	12	8	16	18	193	433	1	51	359	241	744	2,145
1900	...	135	9	4	6	9	48	10	12	13	11	227	349	3	56	338	244	1,088	2,416
<b>Servants of the Companies and Contractors :</b>																			
1901	...	511	81	24	21	12	131	89	48	40	103	437	1,057	97	484	400	48	1,171	4,243
1900	...	583	64	31	30	13	116	99	60	40	123	450	1,210	90	452	408	52	1,347	4,585
(For details, see Table No. 7.)																			
<b>Other Persons :</b>																			
Persons having business at stations	1901	17	2	3	2	...	5	2	2	1	...	14	30	1	5	13	5	37	122
	1900	31	2	1	...	...	6	5	2	1	8	16	21	...	1	7	1	34	106
Trespassers	1901	282	16	8	3	6	12	5	2	1	1	17	22	...	...	19	1	41	154
	1900	288	19	8	4	1	23	3	2	...	4	13	21	...	1	14	1	40	164
Others	1901	226	6	2	2	...	4	2	2	1	2	13	8	...	2	11	3	18	76
	1900	213	5	2	1	..	8	2	2	1	...	9	13	1	1	12	1	25	83
(Including accidents at level crossings, suicides, and accidents to other persons not coming in any of the above classifications)																			
TOTAL	1901	1,171	115	40	30	24	200	110	62	59	124	674	1,550	99	542	802	298	2,011	6,740
	1900	1,250	99	46	41	23	201	119	78	54	146	715	1,614	94	511	779	299	2,534	7,353

**NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES KILLED OR INJURED IN ACCIDENTS TO TRAINS, AND BY THE MOVEMENT OF RAILWAY VEHICLES.**

TABLE No. 7.

STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Year ending 31st December, 1901, classified according to the NATURE of the EMPLOYMENT and AGE of the persons injured, and the NATURE of the INJURIES; and also the total number of Persons employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	Number of Persons Employed in 1901.
	Fatal.	Injuries resulting in loss of			Fractures of				Dis-locations.	In-ternal In-juries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to Sys-tem.	Mis-cella-neous In-juries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
1. Brakemen. (See Goods Guards.)																			
2. Capstanmen and Capstan-lads: (1) Men	4	...	...	...	...	3	1	2	...	...	5	29	...	4	2	...	46	92	1,052
(2) Boys	...	...	...	1	...	...	...	...	...	1	...	10	...	...	...	...	3	15	204
3. Carmen and Van-guards: (1) Men	1	...	...	...	...	...	...	1	...	3	...	1	...	1	...	...	3	9	16,819
(2) Boys	...	1	1	...	...	...	...	...	...	...	...	2	...	...	...	...	1	5	6,711
4. Carriage Cleaners: (1) Men	4	2	...	...	...	...	...	1	...	2	7	7	...	1	4	1	7	32	5,084
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3	4	297
5. Carriage and Wag-gon Examiners.	5	3	...	...	...	2	2	...	...	1	2	4	...	...	3	...	2	19	3,454
6. Checkers: (1) Men	3	1	...	...	...	1	...	...	...	...	2	7	...	1	1	...	9	22	7,792
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	179
7. Chockers, Chain-boys, and Slippers: (1) Men	2	2	...	...	...	...	3	...	...	1	5	7	...	1	4	...	8	31	96
(2) Boys	...	1	...	...	1	2	2	1	...	1	6	24	...	2	3	...	14	57	640
8. Clerks: (1) Men	4	1	...	...	...	...	2	...	1	1	2	2	...	1	2	...	4	16	48,245
(2) Boys	7	...	...	1	...	1	...	...	1	...	...	1	...	...	...	...	1	5	13,565
9. Engine Cleaners: (1) Men...	5	3	...	...	...	5	...	...	2	4	7	13	2	3	6	...	18	63	15,250
(2) Boys	2	1	...	...	...	...	1	2	...	...	2	1	...	...	1	1	8	17	3,993
10. Engine Drivers	26	4	...	...	1	9	6	3	3	7	50	51	35	23	36	6	108	342	25,556
11. Firemen	24	4	2	3	4	6	4	5	...	10	39	119	52	39	62	3	144	496	24,083
12. Gatekeepers	3	...	...	...	...	1	...	...	...	...	4	...	...	...	...	...	1	6	3,507
13. Greasers: (1) Men	5	...	1	...	...	...	...	1	...	...	2	2	...	...	2	...	...	9	964
(2) Boys	7	...	...	...	...	1	...	...	...	...	4	...	...	...	1	...	4	10	841
14. Guards (Goods) and Brakemen.	42	11	7	4	...	14	10	7	7	15	87	209	3	158	60	14	239	845	15,708
15. Guards, Passenger	8	1	...	...	...	2	...	...	1	3	10	28	...	23	18	4	32	122	7,291
16. Horse Drivers	2	...	...	...	...	3	1	...	1	1	8	43	...	12	6	...	14	89	2,272
17. Inspectors: (1) Permanent-way	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1,071
(2) Others	6	...	1	...	...	1	...	...	...	...	1	3	...	4	1	1	6	18	5,701
18. Labourers	33	6	...	1	...	11	6	...	3	3	20	37	...	5	21	1	39	153	53,282
19. Lampmen and Lamp-lads: (1) Men	3	...	...	...	...	1	...	...	...	...	2	1	...	...	4	...	1	9	1,813
(2) Boys	1	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	1	4	472
20. Loaders and Sheeters	2	...	...	...	...	1	1	...	...	2	1	11	...	...	...	...	9	25	4,430
21. Mechanics: (1) Men	18	1	1	...	...	1	1	1	...	1	5	5	...	1	...	1	8	26	70,922
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10,518
22. Messengers: (1) Men	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	652
(2) Boys	3	1	...	...	...	2	...	...	...	...	2	1	...	...	...	...	2	8	2,642
23. Number Takers: (1) Men...	2	...	...	...	...	1	...	1	...	...	4	3	...	2	1	...	3	15	823
(2) Boys	1	...	...	...	...	...	1	...	...	...	1	2	...	...	2	...	...	6	745
24. Permanent-way Men	121	5	1	1	1	16	15	2	2	3	13	25	...	7	16	1	41	149	66,621
25. Pointmen	3	1	...	1	...	...	...	1	3	...	2	9	...	1	6	...	7	31	773
26. Policemen	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	2	1,998
27. Porters: (1) Men	41	8	2	5	2	18	14	9	4	16	52	173	4	56	53	5	126	547	50,134
(2) Boys...	4	...	2	1	1	2	1	...	...	...	3	7	...	1	4	...	3	25	5,142
28. Shunters	41	11	3	1	...	6	14	3	9	18	51	170	1	124	53	5	181	650	10,841
29. Signal Fitters and Telegraph Wiremen.	5	1	...	...	...	3	1	...	1	...	1	...	...	...	...	1	1	9	3,843
30. Signalmen	9	1	1	1	1	4	2	1	1	1	3	8	...	...	5	1	9	39	27,723
31. Signal Box Lads	2	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	3	2,779
32. Station Masters	2	...	...	...	...	1	...	2	...	...	3	5	...	3	4	...	5	23	2,163
33. Ticket Collectors and Examiners.	1	...	...	...	...	1	...	...	...	...	1	5	...	2	3	...	5	17	5,912
34. Watchmen	4	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	2	993
35. Yardsmen	5	1	...	...	...	1	...	2	...	1	7	8	...	1	1	...	14	36	1,717
36. Miscellaneous: (1) Adults	23	1	1	...	...	5	1	2	1	8	15	14	...	6	11	...	32	97	32,723
(2) Boys	4	3	...	...	...	...	...	...	...	...	3	2	...	...	1	...	2	11	2,828
Total of Railway Servants.	491	78	23	20	12	125	89	47	40	103	435	1050	97	483	397	48	1187	4,214	575,834
37. Contractors' Ser-vants: (1) Men	20	3	1	1	...	6	...	1	...	...	2	7	...	1	2	...	4	28	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	
Total of Contrac-tors' Servants.	20	3	1	1	...	6	...	1	...	...	2	7	...	1	3	...	4	29	
Total of Railway and Contrac-tors' Servants.	511	81	24	21	12	131	89	48	40	103	437	1057	97	484	400	48	1171	4,243	

## NUMBER OF PERSONS KILLED OR INJURED ON RAILWAY PREMISES OTHERWISE

TABLE No. 8.

SUMMARY STATEMENT OF THE NUMBER of PASSENGERS, SERVANTS of the COMPANIES and KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS COMPANIES in the Year ending 31st December 1901, with corresponding figures for the

	1901.					
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>						
a. Whilst ascending or descending steps at stations	9	282	4	5	...	...
b. By being struck by barrows, by falling over packages, &c., on station platforms.	...	102	...	...	...	1
c. From falling off platforms on to the ballast ...	4	101	...	7	...	1
d. By other accidents ... ..	5	171	1	9	...	1
<b>TOTAL OF PASSENGERS ... ..</b>	<b>18</b>	<b>656</b>	<b>5</b>	<b>21</b>	<b>...</b>	<b>3</b>
<b>SERVANTS :—</b>						
1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes.	4	1,714	1	98	...	19
2. Whilst moving goods and luggage in stations or sheds.	2	525	...	24	...	1
3. Whilst working at cranes or capstans ... ..	3	203	1	22	...	1
4. By the falling of waggon-doors, lamps, bales of goods, &c.	1	547	...	32	...	4
5. Whilst attending to engines at rest ... ..	...	1,303	...	81	1	8
6. From falling off, or when getting on or off engines or vehicles at rest.	3	829	...	41	...	9
7. From falling off platforms on to the ballast ...	1	216	...	14	...	1
8. From falling off ladders, scaffolds, &c. ... ..	13	352	2	20	...	11
9. By stumbling whilst walking on the line ...	...	724	...	20	...	7
10. By being trampled on or kicked by horses whilst engaged in railway work.	1	62	...	2	...	...
11. From being struck by articles thrown from passing trains.	...	10	...	2	...	...
12. From the falling of rails, sleepers, &c., when at work on the line.	...	722	1	16	...	8
13. Otherwise injured when at work on the line or in sidings.	3	1,002	...	26	1	15
14. Miscellaneous ... ..	13	1,720	3	70	...	16
<b>TOTAL OF SERVANTS ... ..</b>	<b>44</b>	<b>9,929</b>	<b>8</b>	<b>468</b>	<b>2</b>	<b>100</b>
<b>OTHER PERSONS :—</b>						
On business at stations and sidings ... ..	10	308	4	22	...	3
Miscellaneous ... ..	13	112	2	12	...	1
<b>TOTAL OF OTHER PERSONS ... ..</b>	<b>23</b>	<b>490</b>	<b>6</b>	<b>34</b>	<b>...</b>	<b>4</b>
<b>GRAND TOTAL ... ..</b>	<b>85</b>	<b>11,005</b>	<b>19</b>	<b>523</b>	<b>2</b>	<b>107</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, sidings, goods yards, and all other premises warehousing goods, repairing sheds,

THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 8.

of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE as having been to TRAINS or by the MOVEMENT OF RAILWAY VEHICLES, on the PREMISES\* of the RAILWAY UNITED KINGDOM for the Year 1900.

1901.		1900.		
UNITED KINGDOM.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
13	287	4	299	PASSENGERS :—  a. Whilst ascending or descending steps at stations. b. By being struck by barrows, by falling over packages, &c., on station platforms. c. From falling off platforms on to the ballast. d. By other accidents.
...	103	...	99	
4	109	2	64	
6	181	1	162	
23	680	7	624	TOTAL OF PASSENGERS.
5	1,831	7	2,351	SERVANTS :—  1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes. 2. Whilst moving goods and luggage in stations or sheds. 3. Whilst working at cranes or capstans. 4. By the falling of waggon-doors, lamps, bales of goods, &c. 5. Whilst attending to engines at rest. 6. From falling off, or when getting on or off engines or vehicles at rest. 7. From falling off platforms on to the ballast. 8. From falling off ladders, scaffolds, &c. 9. By stumbling whilst walking on the line. 10. By being trampled on or kicked by horses whilst engaged in railway work. 11. From being struck by articles thrown from passing trains. 12. From the falling of rails, sleepers, &c., when at work on the line. 13. Otherwise injured when at work on the line or in sidings. 14. Miscellaneous.
2	550	...	625	
4	226	1	237	
1	583	2	602	
1	1,392	1	1,488	
3	879	2	1,036	
1	231	...	261	
15	383	8	400	
...	751	3	739	
1	64	1	124	
...	12	...	9	
1	746	3	449	
4	1,043	9	1,318	
16	1,806	11	1,474	
54	10,497	48	11,113	TOTAL OF SERVANTS.
14	333	14	369	OTHER PERSONS :—  On business at stations and sidings.  Miscellaneous.
15	125	6	113	
29	458	20	482	TOTAL OF OTHER PERSONS.
106	11,635	75	12,219	GRAND TOTAL.

used for the purpose of working the railway, but does not include factories, workshops, buildings used exclusively for stables, hotels, and other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1 Whilst loading, unloading, or sheeting Waggons.		2 Whilst moving Goods and Luggage in Stations or Sheds.		3 Whilst work- ing at Cranes or Capstans.		4 By the falling of Wagon Doors, Lamps, Bales of Goods, &c.		5 Whilst attending to Engines at rest.		6 From falling off, or when getting on or off Engines or Vehicles at rest.		7 From falling off Platforms on to the Ballast.	
	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.
ENGLAND AND WALES.														
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ... ..	...	4	...	...	...	...	...	1	...	2	...	...	...	...
Brecon and Merthyr ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Burry Port and Gwendraeth Valley.	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Cambrian ... ..	...	7	...	...	...	...	...	4	...	2	...	4	...	2
Carlisle Joint Station ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Central London ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	1	5	...	1	...	...	...	...	...	...	...	4	...	4
City and South London ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Cockermouth, Keswick, and Pen- rith.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colne Valley and Halstead ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...
East and West Junction ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...
East and West Yorkshire Union...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Furness ... ..	...	5	...	...	...	...	...	...	...	4	...	5	...	...
Great Central ... ..	...	52	...	19	1	9	...	19	...	20	...	16	...	6
Great Eastern ... ..	...	153	...	50	...	12	...	45	...	138	...	63	...	15
Great Northern ... ..	...	106	...	92	...	16	...	57	...	10	...	34	...	29
Great Northern and Great Eastern Joint.	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Great Western ... ..	1	178	...	27	...	12	...	22	...	123	...	101	...	37
Hull, Barnsley, and West Riding Junction.	...	1	...	...	...	...	...	...	...	1	...	1	...	...
Lancashire and Yorkshire ... ..	1	283	1	72	2	18	1	64	...	191	1	74	...	12
Lancashire and Yorkshire and London and North-Western Joint.	...	14	...	...	...	1	...	2	...	...	...	2	...	...
Lancashire, Derbyshire and East Coast.	...	1	...	...	...	1	...	...	...	4	...	...	...	...
Liverpool Overhead ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Liverpool, St. Helen's, and South Lancashire.	...	...	...	1	...	...	...	...	...	...	...	...	...	...
London and North-Western ... ..	...	379	...	75	...	52	...	97	...	460	...	218	1	34
London and North-Western and Furness Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and North-Western and Great Western Joint.	...	16	...	1	...	1	...	6	...	...	...	4	...	5
London and North-Western and Midland Joint.	...	1	...	1	...	...	...	...	...	...	...	1	...	2
London and South-Western ... ..	...	98	...	52	...	9	...	33	...	28	...	25	...	3
London and South-Western, and London, Brighton, and South Coast Joint.	...	2	...	...	...	...	...	...	...	...	...	...	...	...
London, Brighton, and South Coast.	...	39	...	8	...	8	...	24	...	17	1	17	...	1
London, Tilbury and Southend ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and



THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Year ending 31st December 1901.

8		9		10		11		12		13		14		Total.		NAME OF COMPANY.
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscellaneous.		Killed.	Injured.	
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
ENGLAND AND WALES																
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Alexandra (Newport) Dock.
...	1	...	4	...	...	...	...	...	1	...	2	...	2	...	17	Barry.
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	3	Brecon and Merthyr.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Burry Port and Gwendraeth Valley.
...	...	...	1	...	...	...	...	...	8	...	2	...	6	...	36	Cambrian.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	3	Carlisle Joint Station.
...	...	...	...	...	...	...	...	...	...	...	...	1	5	1	5	Central London.
...	1	...	5	...	...	...	...	...	...	...	...	...	2	1	22	Cheshire Lines.
...	1	...	...	...	...	...	...	...	...	...	...	...	6	...	8	City and South London.
...	1	...	...	...	...	...	...	...	...	...	2	...	...	...	3	Cookermouth, Keswick, and Penrith.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	Colne Valley and Halstead.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	East and West Junction.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	East and West Yorkshire Union.
...	...	...	1	...	...	...	...	...	2	...	4	...	7	...	28	Furness.
1	9	...	8	...	...	...	...	...	12	...	10	2	32	4	212	Great Central.
1	23	...	46	1	11	...	...	...	79	...	154	...	218	2	1,007	Great Eastern.
...	25	...	40	...	7	...	...	...	31	...	54	...	120	...	621	Great Northern.
...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	4	Great Northern and Great Eastern Joint.
1	43	...	81	...	...	...	2	...	93	1	123	...	152	3	994	Great Western.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	4	Hull, Barnsley, and West Riding Junction.
3	36	...	44	...	4	...	1	...	34	...	27	3	106	12	966	Lancashire and Yorkshire.
1	1	...	5	...	...	...	...	...	3	...	1	...	5	1	34	Lancashire and Yorkshire and London and North-Western Joint.
...	2	...	2	...	...	...	...	...	...	...	2	...	2	...	14	Lancashire, Derbyshire and East Coast.
...	...	...	...	...	...	...	...	...	...	...	...	4	2	4	2	Liverpool Overhead.
...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	3	Liverpool, St. Helen's, and South Lancashire.
1	78	...	218	...	4	...	2	...	219	...	309	...	442	2	2,582	London and North-Western.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	London and North-Western and Furness Joint.
...	6	...	7	...	...	...	...	...	8	...	26	...	16	...	96	London and North-Western and Great Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	8	London and North-Western and Midland Joint.
...	19	...	20	...	1	...	2	...	32	...	34	...	45	...	401	London and South-Western.
...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	5	London and South-Western, and London, Brighton, and South Coast Joint.
1	19	...	7	...	...	...	...	...	26	1	33	...	17	3	216	London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	London, Tilbury and Southend.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—continued.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY  
otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1 Whilst loading, unloading, or sheeting Waggons.		2 Whilst moving Goods and Luggage in Stations or Sheds.		3 Whilst work- ing at Cranes or Capstans.		4 By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		5 Whilst attending to Engines at rest.		6 From falling off, or when getting on or off Engines or Vehicles at rest.		7 From falling off Platforms on to the Ballast.	
	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.
ENGLAND AND WALES—cont.														
Macclesfield Joint Station ...	...	3	...	1	...	...	...	...	...	...	...	1	...	...
Manchester and Milford ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Mersey ...	...	1	...	2	...	...	...	2	...	1	...	2	...	...
Metropolitan ...	...	4	...	2	...	...	...	2	...	4	...	2	...	1
Metropolitan and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ...	...	2	...	1	...	...	...	...	...	2	...	3	...	4
Midland ...	...	220	...	69	...	33	...	112	...	153	...	1	127	36
Midland and Glasgow and South- Western Joint.	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Midland and Great Northern Joint.	...	13	...	1	...	...	...	2	...	2	...	4	...	1
Midland and Great Western Joint	...	1	...	...	...	...	...	1	...	...	...	1	...	2
Midland and Lancashire and Yorkshire Joint.	...	3	...	1	...	1	...	1	...	...	...	...	...	...
Midland and South-Western Junc- tion.	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Neath and Brecon ...	...	...	...	2	...	...	...	1	...	1	...	...	...	...
Normanton Joint Station ...	...	3	...	...	...	1	...	...	...	...	...	...	...	...
North and South-Western Junc- tion.	...	...	...	...	...	...	...	...	...	...	...	1	...	...
North-Eastern ...	1	76	...	30	...	20	...	33	...	84	...	60	...	10
North-Eastern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	1	...	...
North London ...	...	4	...	3	...	...	...	1	...	6	...	1	...	1
North Staffordshire ...	...	3	...	3	...	2	...	2	...	3	...	6	...	1
Nottingham Joint Station ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	4	...	1	...	...	...	...	...	...	...	1	...	...
Otley and Ilkley Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhondda and Swansea Bay ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Rhymney ...	...	1	...	...	...	...	...	...	...	5	...	1	...	...
Severn and Wye Joint ...	...	...	...	1	...	...	...	...	...	1	...	...	...	...
Sheffield and Midland Joint ...	...	3	...	1	...	1	...	...	...	...	...	3	...	...
Snailbeach ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint ...	...	2	...	...	...	...	...	2	...	1	...	1	...	...
South-Eastern and Chatham ...	...	13	...	2	...	2	...	8	...	17	...	23	...	9
Stalybridge Joint Station...	...	...	...	...	...	...	...	1	...	...	...	...	...	...

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

TABLE No. 9—continued.

**COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES of RAILWAY VEHICLES, during the Year ending 31st December 1901.**

8 From falling of Ladders, Scaffolds, &c.		9 By stumbling whilst walking on the Line.		10 By being trampled on or kicked by Horses whilst engaged in Railway Work.		11 By being struck by Articles thrown from passing Trains.		12 By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		13 Otherwise Injured when at Work on the Line or in Sidings.		14 Miscel- laneous.		Total.		NAME OF COMPA
Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	ENGLAND AND W. cont.
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	■ Macclesfield Joint
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 Manchester and M
...	1	...	...	...	...	...	...	...	1	...	...	...	2	...	...	2 Maryport and Carl
...	2	...	4	...	...	...	...	...	7	...	9	...	7	...	...	11 Mersey.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	44 Metropolitan.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1 Metropolitan and Western Joint.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	2 Metropolitan and politan District
...	1	...	1	...	...	...	...	...	4	...	3	...	4	...	...	25 Metropolitan Dist
...	39	...	129	...	26	...	2	...	90	1	96	...	325	2	1,457	Midland.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 Midland and Glasg South-Western
...	...	...	...	...	1	...	...	...	6	...	7	1	...	1	...	46 Midland and Northern Joint.
...	1	...	1	...	...	...	...	...	...	...	...	...	3	...	...	10 Midland and Western Joint.
...	...	...	2	...	...	...	...	...	...	...	...	...	4	...	...	11 Midland and Lan and Yorkshire J
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2 Midland and South ern Junction.
...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6 Neath and Brecon
...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	6 Normanton Joint f
...	1	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1 North and South-V Junction.
...	24	...	63	...	...	...	1	...	40	...	75	...	123	...	...	652 North-Eastern.
...	...	...	1	...	...	...	...	...	...	...	...	...	3	...	...	5 North - Eastern London and Western Joint.
...	2	...	3	...	...	...	...	...	4	...	3	...	7	...	...	35 North London.
...	3	...	2	...	...	...	...	...	2	...	...	...	8	...	...	36 North Staffordshi
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	3 Nottingham Joi tion.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6 Oldham, Ashton Lyne, and Guide Junction.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1 Otley and Ilkley
...	3	...	...	...	...	...	...	...	...	...	...	...	1	...	...	4 Rhondda and S Bay.
...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	9 Rhymney.
...	...	...	1	...	...	...	...	...	1	...	...	...	1	...	...	5 Severn and Wye J
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	11 Sheffield and Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 Snailbeach.
...	...	...	4	...	...	...	...	...	2	...	6	...	2	...	...	20 Somerset and Joint.
...	1	3	9	...	...	...	...	...	5	...	8	1	9	2	108	South-Eastern an ham.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1 Stalybridge Joint

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, rep or other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—continued.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
<b>ENGLAND AND WALES—cont.</b>														
Taff Vale ... ..	...	10	...	3	...	3	...	1	...	16	...	21	...	...
Tottenham and Forest Gate Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Tottenham and Hampstead Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West London Extension Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wigan Junction ... ..	...	1	...	...	...	...	...	1	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay.	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Railway Clearing House ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>TOTAL, ENGLAND AND WALES</b>	<b>4</b>	<b>1,714</b>	<b>2</b>	<b>525</b>	<b>3</b>	<b>203</b>	<b>1</b>	<b>547</b>	<b>...</b>	<b>1,303</b>	<b>3</b>	<b>829</b>	<b>1</b>	<b>216</b>
<b>SCOTLAND.</b>														
Caledonian ... ..	1	35	...	8	...	8	...	8	...	31	...	15	...	2
Dumbarton and Balloch Joint ...	...	...	...	...	1	3	...	...	...	...	...	...	...	...
Glasgow and Paisley Joint ... ..	...	9	...	...	...	2	...	...	...	...	...	...	...	1
Glasgow and South-Western ... ..	...	1	...	...	...	1	...	2	...	3	...	...	...	...
Glasgow, Barrhead, and Kilmar-nock Joint.	...	5	...	...	...	...	...	...	...	...	...	...	...	...
Great North of Scotland ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Highland ... ..	...	5	...	1	...	2	...	...	...	2	...	...	...	...
North British ... ..	...	42	...	15	...	6	...	32	...	45	...	26	...	11
Perth General Station ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
<b>TOTAL, SCOTLAND ... ..</b>	<b>1</b>	<b>98</b>	<b>...</b>	<b>24</b>	<b>1</b>	<b>22</b>	<b>...</b>	<b>32</b>	<b>...</b>	<b>81</b>	<b>...</b>	<b>41</b>	<b>...</b>	<b>14</b>
<b>IRELAND.</b>														
Belfast and County Down ... ..	...	...	...	1	...	...	...	...	...	1	...	1	...	...
Belfast and Northern Counties ...	...	13	...	...	...	...	...	2	...	4	...	2	...	1
Cork, Bandon, and South Coast ...	...	...	...	...	...	...	...	1	1	1	...	1	...	...
Dundalk, Newry and Greenore ...	...	...	...	...	...	...	...	...	...	1	...	1	...	...
Great Northern ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Southern and Western ... ..	...	2	...	...	...	...	...	...	...	1	...	3	...	...
Midland Great Western ... ..	...	4	...	...	...	1	...	1	...	...	...	1	...	...
<b>TOTAL, IRELAND ... ..</b>	<b>...</b>	<b>19</b>	<b>...</b>	<b>1</b>	<b>...</b>	<b>1</b>	<b>...</b>	<b>4</b>	<b>1</b>	<b>8</b>	<b>...</b>	<b>9</b>	<b>...</b>	<b>1</b>
<b>TOTAL, UNITED KINGDOM...</b>	<b>5</b>	<b>1,831</b>	<b>2</b>	<b>550</b>	<b>4</b>	<b>226</b>	<b>1</b>	<b>583</b>	<b>1</b>	<b>1,392</b>	<b>3</b>	<b>879</b>	<b>1</b>	<b>231</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Year ending 31st December 1901.

8 From falling off Ladders, Scaffolds, &c.		9 By stumbling whilst walking on the Line.		10 By being trampled on and kicked by Horses whilst engaged in Railway Work.		11 By being struck by Articles thrown from passing Trains.		12 By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		13 Otherwise Injured when at work on the Line or in Sidings.		14 Miscel- laneous.		Total.		NAME OF COMPANY.
Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	
...	2	...	7	...	...	...	...	...	9	...	4	...	5	...	81	Taff Vale.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	Tottenham and Forest Gate Joint.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	Tottenham and Hamp- stead Joint.
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	2	West London Extension Joint.
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	3	Wigan Junction.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	3	Wrexham, Mold, and Connah's Quay.
...	...	...	2	...	...	...	...	...	...	...	...	1	...	1	2	Railway Clearing House.
13	352	...	724	1	62	...	10	...	722	3	1,002	13	1,720	44	9,929	{ TOTAL, ENGLAND AND WALES.
SCOTLAND.																
1	11	...	11	...	2	...	...	...	5	...	9	1	32	3	177	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3	Dumbarton and Balloch Joint.
...	1	...	...	...	...	...	2	...	...	...	...	...	...	...	15	Glasgow and Paisley Joint.
1	4	...	1	...	...	...	...	...	...	...	...	...	1	1	13	Glasgow and South- Western.
...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	7	Glasgow, Barrhead, and Kilmarnock Joint.
...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	Great North of Scotland.
...	...	...	...	...	...	...	...	...	1	...	1	...	4	...	16	Highland.
...	4	...	8	...	...	...	...	1	10	...	15	1	31	2	235	North British.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Perth General Station.
2	20	...	20	...	2	...	2	1	16	...	26	3	70	8	468	TOTAL SCOTLAND.
IRELAND.																
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	5	Belfast and County Down.
...	2	...	1	...	...	...	...	...	1	...	3	...	1	...	30	Belfast and Northern Counties.
...	3	...	...	...	...	...	...	...	...	...	...	...	2	1	8	Cork, Bandon, and South Coast.
...	...	...	...	...	...	...	...	...	1	...	1	...	2	...	6	Dundalk, Newry, and Greenore.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	Great Northern.
...	4	...	4	...	...	...	...	...	6	1	11	...	5	1	36	Great Southern and Western.
...	1	...	2	...	...	...	...	...	...	...	...	...	3	...	13	Midland Great Western.
...	11	...	7	...	...	...	...	...	8	1	15	...	16	2	100	TOTAL, IRELAND.
15	383	...	751	1	64	...	12	1	746	4	1,043	16	1,806	54	10,497	{ TOTAL, UNITED KING- DOM.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

**NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.**

TABLE No. 10.

STATEMENT showing the number of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD OF TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES during the Year ending 31st December, 1901, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS injured and the NATURE of the INJURIES; and also the total number of PERSONS employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	No. of Persons employed in 1901.
	Fatal.	Injuries resulting in loss of			Fracture of				Dislocations.	Internal Injuries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to System.	Miscellaneous Injuries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skulls.	Legs or Arms.	Collar-bones or ribs.	Other Bones.			Head or Body.	Limbs.							
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.		
1. Brakemen. (See Goods Guards.)																			
2. Capstan-men and Capstan-lads: (1) Men	...	...	...	...	...	...	...	...	...	1	...	5	...	2	4	...	6	18	1,051
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	1	...	1	2	...	...	4	204
3. Carmen and Van-guarders: (1) Men	3	...	...	...	...	9	6	1	2	5	29	105	...	70	37	...	106	370	16,814
(2) Boys	1	...	...	...	1	3	1	1	2	3	11	30	1	9	18	...	27	107	6,711
4. Carriage-cleaners: (1) Men	...	...	...	...	1	6	4	...	1	4	12	19	3	22	13	2	45	132	5,084
(2) Boys	1	...	...	...	...	...	...	...	...	...	2	2	...	2	...	2	4	12	297
5. Carriage and wagon examiners.	...	...	...	...	...	2	...	1	1	1	3	11	2	12	3	...	13	49	3,454
6. Checkers: (1) Men	...	...	...	...	...	1	1	1	...	1	9	50	...	35	7	...	40	145	7,792
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	179
7. Chockers, Chain-boys, and Slip-pers: (1) Men	...	...	...	...	...	1	...	...	...	...	...	1	...	2	...	...	6	10	96
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	1	...	3	2	...	5	11	640
8. Clerks: (1) Men	...	...	...	...	...	...	...	...	...	2	1	7	...	15	2	1	12	40	48,245
(2) Boys	...	...	...	...	...	1	...	1	...	...	2	5	...	6	5	...	5	25	13,565
9. Engine-cleaners: (1) Men	...	...	...	...	1	4	4	1	2	13	17	70	33	51	57	2	158	413	15,250
(2) Boys	...	...	...	...	...	2	...	2	...	4	4	19	9	14	9	...	27	90	3,993
10. Engine-drivers	3	...	1	...	...	7	8	3	6	8	47	115	46	114	63	1	214	633	25,556
11. Firemen	2	...	...	...	...	6	3	2	3	6	53	184	45	137	87	1	235	762	24,083
12. Gatekeepers	1	...	...	...	...	1	1	...	2	...	1	4	...	3	1	...	5	18	3,507
13. Greasers: (1) Men	...	...	...	...	...	1	...	...	...	...	2	4	1	3	2	...	9	22	964
(2) Boys	...	...	...	...	...	1	1	...	...	...	...	3	...	...	1	...	...	6	841
14. Guards (Goods) and Brakemen.	...	...	...	...	...	6	...	1	2	1	13	73	1	98	12	...	33	290	15,708
15. Guards (Passenger)	1	...	...	...	...	...	...	3	...	1	7	31	...	37	13	1	24	117	7,291
16. Horse-drivers	...	...	...	...	...	1	1	2	...	...	2	10	...	8	2	...	11	37	2,272
17. Inspectors: (1) Permanent-way	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	2	4	1,071
(2) Others	1	...	...	...	...	2	...	...	...	1	2	11	...	14	1	...	9	40	5,701
18. Labourers	8	...	...	4	2	32	11	18	6	26	54	498	14	159	128	7	424	1,383	53,282
19. Lamp-men and lamp-lads: (1) Men	...	...	...	...	...	2	...	1	...	3	5	2	2	23	7	1	33	79	1,813
(2) Boys	...	...	...	...	...	...	...	...	...	...	2	4	...	9	5	1	4	25	472
20. Loaders and Sheeters.	...	...	...	...	...	2	2	3	2	1	7	58	...	28	14	1	61	179	4,430
21. Mechanics: (1) Men	7	...	...	...	3	9	5	3	4	6	24	94	21	74	61	2	173	479	70,922
(2) Boys	...	...	...	...	...	2	...	...	...	1	3	6	...	2	1	...	13	28	10,514
22. Messengers: (1) Men	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	2	4	652
(2) Boys	...	...	...	...	...	1	...	1	1	2	1	4	1	3	3	...	3	20	2,642
23. Number-takers: (1) Men	1	...	...	...	...	...	...	...	2	2	1	3	...	10	1	...	2	21	823
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	...	1	5	745
24. Permanent-way Men.	5	...	...	5	...	33	11	13	8	15	40	443	2	173	173	1	373	1,290	66,621
25. Pointsmen	...	...	...	...	...	1	...	...	...	...	...	2	...	5	1	...	2	11	773
26. Policemen	...	...	...	...	...	2	...	...	1	...	1	4	...	3	2	...	8	21	1,998
27. Porters: (1) Men	11	...	1	2	1	39	23	20	26	46	140	735	17	413	238	10	636	2,347	50,134
(2) Boys	...	...	...	...	...	5	...	1	2	...	5	22	2	12	16	...	18	83	5,142
28. Shunters	...	...	...	...	...	1	5	2	1	2	12	32	2	52	14	...	42	165	10,841
29. Signal fitters	1	...	...	1	...	3	1	...	1	1	7	15	...	10	11	...	28	78	3,843
30. Signalmen	1	...	...	...	1	1	2	...	2	4	7	23	1	58	13	...	48	160	27,723
31. Signal-box lads	...	...	...	...	...	...	1	...	...	...	1	2	...	...	1	1	4	10	2,079
32. Station-masters	...	...	...	...	...	3	3	...	2	1	3	10	...	14	4	...	11	61	8,103
33. Ticket-collectors	...	...	...	...	...	...	3	...	...	1	3	3	...	12	4	...	9	35	3,642
34. Watchmen	...	...	...	...	...	1	...	...	...	...	2	...	...	1	...	1	5	10	993
35. Yardsmen	...	...	...	...	...	...	...	...	...	1	1	7	1	8	3	...	6	27	1,717
36. Miscellaneous: (1) Adults	1	...	...	...	1	11	4	3	3	14	47	108	15	76	43	1	167	493	32,723
(2) Boys	...	...	...	...	...	1	...	...	...	...	2	6	...	2	8	...	13	32	2,828
Total of Railway Servants	48	...	2	12	11	203	101	85	82	178	586	2,847	219	1,806	1092	36	3,133	10,393	575,834
37. Contractors' Servants: (1) Men	6	...	...	1	...	8	3	2	...	5	6	24	1	7	16	2	28	103	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	
Total of Contractors' Servants	6	...	...	1	...	8	3	2	...	5	6	24	1	7	17	2	28	104	
Total of Railway and Contractors' Servants	54	...	2	13	11	211	104	87	82	183	592	2,871	220	1,813	1109	38	3,161	10,497	

## ACCIDENTS TO TRAINS, ROLLING STOCK AND PERMANENT WAY.

TABLE No. 11.

SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to the BOARD OF TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM during the Year ending 31st December 1901, classified according to the NATURE of the ACCIDENT; with corresponding figures for the UNITED KINGDOM for the year 1900.

NATURE OF ACCIDENT.	1901.				1900.
	ENGLAND AND WALES.	SCOTLAND.	IRELAND.	UNITED KINGDOM.	UNITED KINGDOM.
<b>(A)—ACCIDENTS TO TRAINS:—</b>					
1. Collisions between passenger trains or parts of passenger trains.	41	10	...	51	42
2. Collisions between passenger trains and goods or mineral trains or light-engines.	45	8	2	55	72
3. Collisions between goods trains or parts of goods trains and light-engines.	41	9	...	50	51
4. Collisions between trains and vehicles standing foul of the line.	5	2	...	7	1
5. Collisions between trains and buffer-stops or vehicles standing against buffer-stops:—					
(a) From trains running into stations or sidings at too high a speed.	13	...	2	15	13
(b) From other causes ... ..	13	1	...	14	19
6. Trains coming in contact with projections from other trains running on parallel lines.	2	...	...	2	2
7. Passenger trains or parts of passenger trains leaving the rails.	50	13	2	65	75
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	13	4	...	17	24
9. Trains running through gates at level-crossings or into other obstacles.	157	48	6	211	199
10. Fires in trains ... ..	4	13	...	17	16
11. Miscellaneous ... ..	2	...	...	2	4
<b>(B)—ACCIDENTS TO OR FAILURE OF ROLLING STOCK AND PERMANENT WAY:—</b>					
12. The bursting of boilers or tubes, &c., of engines...	5	...	1	6	5
13. The failure of machinery, springs, &c., of engines	4	1	...	5	4
14. The failure of tyres ... ..	195	4	...	199	234
15. " " " wheels ... ..	2	...	...	2	1
16. " " " axles ... ..	129	41	5	175	168
17. " " " brake apparatus* ... ..	...	...	...	...	...
18. " " " couplings ... ..	11	...	1	12	15
19. " " " ropes used in working inlines ...	...	...	...	...	...
20. " " " tunnels, bridges, viaducts, culverts, &c.	...	...	...	...	7
21. Broken rails ... ..	245	44	35	324	317
22. The flooding of portions of permanent-way of such a nature as to involve danger.	16	2	1	19	21
23. Slips in cuttings or embankments of such a nature as to involve danger.	7	2	1	10	28
24. Fires at stations or involving injury to bridges or viaducts.	8	3	...	11	13
25. Miscellaneous ... ..	...	...	...	...	...

\* A Return is published half-yearly setting out in detail all the cases in which brake apparatus has failed to act properly.

TABLE No. 12.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to Year ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES.													
Barry ... ..	...	...	1	...	...	...	...	...	...	...	...	...	...
Basingstoke and Alton Light.	...	...	...	...	...	...	...	...	...	...	4	...	...
Brecon and Merthyr ...	...	...	...	...	...	...	...	...	1	1	...	...	...
Cambrian ... ..	...	...	...	...	...	...	...	...	1	...	2	...	...
Carlisle Goods Traffic Committee.	...	...	1	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	1	...	...	...	...	...	...	...	...	...	...	...	...
Cleator and Workington Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...
Cockermouth, Keswick, and Penrith.	...	...	...	...	...	...	...	...	...	...	1	...	...
Colne Valley and Halstead	...	...	...	...	...	...	...	...	...	...	...	...	...
East Coast Joint Stock ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Festiniog ... ..	...	...	...	...	...	...	...	...	3	...	...	...	...
Furness ... ..	1	...	...	...	...	...	...	...	...	...	1	...	...
Great Central ... ..	...	2	1	1	...	...	...	...	...	...	...	...	...
Great Eastern ... ..	3	4	2	2	1	1	...	1	...	28	...	...	...
Great Northern ... ..	8	6	3	...	1	3	...	2	...	11	...	...	...
Great Northern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Western ... ..	1	1	2	...	...	1	1	5	2	27	2	...	...
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	1	...	...	...	...	...	...	...
Isle of Wight Central ...	...	...	...	...	...	...	...	1	...	...	...	...	...
Lancashire and Yorkshire	2	6	8	...	...	2	...	3	1	5	...	...	1
Lancashire and Yorkshire and London and North-Western Joint.	1	...	...	...	...	...	...	1	...	1	...	...	...
Lancashire, Derbyshire and East Coast.	...	...	...	...	...	...	...	...	...	1	...	...	...
Liverpool Overhead ...	...	...	...	...	...	...	...	...	...	...	1	...	...
London and North-Western	...	3	6	...	1	2	...	1	2	...	...	...	...
London and North-Western and Great Western Joint.	...	...	...	...	...	...	...	...	...	2	...	...	...
London and North-Western and Midland Joint.	1	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western	7	7	2	...	1	1	...	2	...	13	1	...	...
London and South-Western and London, Brighton and South Coast Joint.	...	...	...	...	...	...	...	1	...	...	...	...	...
London, Brighton, and South Coast.	2	1	2	2	1	...	...	5	1	10	...	...	1
London, Tilbury and South-end.	...	...	...	...	...	...	...	...	...	...	...	...	...

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those



STOCK, AND PERMANENT WAY.

TABLE No. 12.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 31st December 1901.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Cuttings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	3	...	...	...	...
...	...	1	...	...	...	...	...	...	3	2	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	3	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	1	...	...	...	...	2	...	...	...	...
...	...	1	...	3	...	...	...	...	11	...	...	...	...
1	...	3	...	5	...	1	...	...	11	13	...	1	...
...	...	2	...	6	...	...	...	...	11	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	2	1	17	...	...	...	...	28	...	1	4	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	1	5	...	...	...	4	...	...	16	1	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	1	...
1	...	36	...	20	...	...	...	...	10	...	...	...	...
...	...	...	...	...	...	...	...	...	12	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	1	...	8	...	...	...	...	18	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	4	...	1	...	...	4	...	3	...	...
...	...	...	...	...	...	...	...	...	1	...	...	1	...

under B are entered against the Company to which the rolling-stock or permanent-way belongs.

TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &amp;c., reported to Year ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES —cont.													
Manchester and Milford ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Manchester, South Junction, and Altrincham.	1	...	...	...	...	...	...	...	1	...	...	...	...
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...
Mersey and Wirral Joint ...	1	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ... ..	1	...	...	...	...	...	...	...	...	1	...	...	...
Metropolitan and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland ... ..	...	4	6	...	1	...	...	...	6	1	1	...	...
Midland and Great Northern Joint.	...	...	...	...	1	...	...	...	...	...	10	...	...
Midland and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	2	...	...
Midland and South-Western Junction.	...	...	...	...	...	...	...	...	2	1	3	...	...
Neath and Brecon ... ..	...	...	...	...	1	...	...	...	...	1	...	...	...
Normanton Joint Station...	...	...	1	...	...	...	...	...	...	...	...	...	...
North-Eastern ... ..	6	5	3	...	3	2	1	...	6	1	24	...	...
North Staffordshire ...	...	1	...	...	...	...	...	...	...	...	...	...	...
North Wales Narrow Gauge	...	...	...	...	...	...	...	...	2	...	...	...	...
Rhondda and Swansea Bay	...	...	1	...	...	...	...	...	...	...	...	...	...
Rhymney ... ..	...	...	1	...	...	...	...	...	...	...	1	...	...
Rhymney and Great Western Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...
Rother Valley ... ..	...	...	...	...	1	...	...	...	...	...	1	...	...
Somerset and Dorset Joint	...	...	...	...	...	...	...	...	...	...	2	...	...
South-Eastern and Chatham.	4	4	...	...	1	...	...	...	4	...	6	...	...
South Wales Mineral ...	...	...	1	...	...	...	...	...	...	...	...	...	...
Taff Vale ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...
Tottenham and Hampstead Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
West Coast Joint Stock ...	...	...	...	...	...	...	...	...	...	...	...	...	...
West London Extension Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

**the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 31st December 1901.**

under B are entered against the Company to which the rolling-stock or permanent way belongs.

TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &amp;c., reported to Year ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains	Miscellaneous.
ENGLAND AND WALES —cont.													
Wigan Junction ... ..	1	...	...	...	...	...	...	...	...	...	...	...	...
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES. }	41	45	41	5	13	13	2	50	13	157	4	2	
SCOTLAND.													
Caledonian ... ..	4	1	6	...	...	...	...	3	1	18	13	...	...
Dumbarton and Balloch Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...
Dundee and Arbroath Joint	...	...	...	...	...	...	...	...	...	1	...	...	...
Glasgow and South - Western.	3	2	...	2	...	...	...	4	1	...	...	...	...
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow District Subway...	...	...	...	...	...	...	...	2	...	...	...	...	...
Great North of Scotland ...	...	...	...	...	...	1	...	...	...	1	...	...	...
Highland ... ..	...	1	...	...	...	...	...	...	...	3	...	...	...
North British ... ..	3	3	2	...	...	...	...	4	1	25	...	...	...
Perth General Station ...	...	...	1	...	...	...	...	...	...	...	...	...	...
Portpatrick and Wigtownshire Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	10	8	9	2	...	1	...	13	4	48	13	...	...
IRELAND.													
Belfast and County Down	...	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties.	...	...	...	...	...	...	...	1	...	...	...	...	...
Cavan and Leitrim ...	...	...	...	...	...	...	...	1	...	3	...	...	...
Cork, Bandon and South Coast.	...	...	...	...	...	...	...	...	...	1	...	...	...
Dublin, Wicklow and Wexford.	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern ... ..	...	1	...	...	...	...	...	...	...	1	...	...	...
Great Southern and Western.	...	1	...	...	2	...	...	...	...	1	...	...	...
West Clare ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, IRELAND ...	...	2	...	...	2	...	...	2	...	6	...	...	...
TOTAL, UNITED KINGDOM	51	55	50	7	15	14	2	65	17	211	17	2	

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE No. 12—continued

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 31st December 1901.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c. of Engines.	The failure of Machinery, Springs, &c. of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Cuttings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	125	...	17	...	...	...	...	...	...	...	...	...
5	4	195	2	139	...	11	...	...	245	16	7	8	...
...	...	1	...	8	...	...	...	...	38	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	5	...	...	...	...	2	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	2	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	...	...	1	1	1	...
...	1	...	...	19	...	...	...	...	3	1	...	2	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	1	...	...
...	...	...	...	7	...	...	...	...	...	...	...	...	...
...	1	4	...	41	...	...	...	...	44	2	2	3	...
...	...	...	...	...	...	...	...	...	6	...	1	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	2	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	6	1	...	...	...
1	...	...	...	2	...	...	...	...	7	...	...	...	...
...	...	...	...	2	...	1	...	...	13	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
1	...	...	...	5	...	1	...	...	35	1	1	...	...
6	5	199	2	175	...	12	...	...	324	19	10	11	...

under B are entered against the Company to which the rolling-stock or permanent-way belongs.

Board of Trade,  
24th April, 1902.

FRANCIS J. S. HOPWOOD.



## APPENDIX A.

### REPORTS TO THE BOARD OF TRADE BY INSPECTING OFFICERS OF THE RAILWAY DEPARTMENT UPON CERTAIN ACCIDENTS WHICH HAVE BEEN INQUIRED INTO.

	Page.		Page.
<b>FESTINIOG :</b>		<b>LONDON AND SOUTH WESTERN RAILWAY :</b>	
Major Druitt's report on the accident which occurred on the 4th October to a passenger train which left the rails near Dduallt Station.	47	Major Pringle's report on the collision which occurred on the 21st October between an empty carriage train and a passenger train at Gunnersbury Station.	96
<b>GREAT EASTERN :</b>		Major Pringle's report on the collision which occurred on the 6th November between two passenger trains at Turnham Green Station.	99
Lieutenant-Colonel von Donop's report on the collision which occurred on the 28th December between a passenger train and the buffer-stops at Cromer Station.	49	Major Pringle's report on the collision which occurred on the 23rd November between a passenger train and a goods train near Malden Station.	103
<b>GREAT NORTHERN :</b>		<b>NORTH EASTERN RAILWAY :</b>	
Major Druitt's report on the collision which occurred on the 28th December between a passenger train and a goods train at King's Cross Station.	53	Lieutenant-Colonel von Donop's report on the collision which occurred on the 24th November between a special passenger train and an empty passenger train near Castleford.	109
<b>LANCASHIRE AND YORKSHIRE :</b>		Lieutenant-Colonel von Donop's report on the accident which occurred on the 3rd December to a passenger train, a portion of which left the rails, near Bardsey.	115
Major Druitt's report on the collisions which occurred on the 24th October between two goods trains, and between a passenger train and a goods train at Bowling Tunnel, near Bradford.	58	Lieutenant-Colonel von Donop's report on the collision which occurred on the 21st December between two passenger trains at Neville Hill, Leeds.	124
Major Druitt's report on the collision which occurred on the 4th November between a passenger train and a pilot engine at Todmorden.	63	Lieutenant-Colonel von Donop's report on the collision which occurred on the 27th December between a passenger train and the buffer-stops at Newcastle Station.	130
Major Druitt's report on the collision which occurred on the 5th November between a passenger train and a goods train at Todmorden.	69		
Major Druitt's report on the collision which occurred on the 5th November between two passenger trains at Windsor Bridge, near Salford.	73	<b>SOUTH EASTERN AND CHATHAM RAILWAYS :</b>	
Major Druitt's report on the collision which occurred on the 14th December between a passenger train and a coal train at Chew Moor, Westhoughton.	79	Major Pringle's report on the collision which occurred on the 16th November between two passenger trains at Shepherd's Lane Junction, between Clapham Road and Brixton Stations.	133
<b>LIVERPOOL OVERHEAD ELECTRIC RAILWAY :</b>		<b>WEST LONDON EXTENSION RAILWAY :</b>	
Lieutenant-Colonel Yorke's report on the accident which occurred on the 23rd December to a passenger train, which was destroyed by fire, near Dingle Station.	85	Major Pringle's report on the collision which occurred on the 23rd December between a passenger train and a goods train near Chelsea Station.	139

For other Reports of Inquiries into Accidents which have occurred during  
the twelve months, see [Cd. 774], [Cd. 775], and [Cd. 949].





## FESTINIOG RAILWAY.

Board of Trade, Railway Department,  
8, Richmond Terrace, Whitehall, London, S.W.,  
22nd October, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 11th October, 1901, the result of my inquiry into the causes of the accident which occurred on the 4th October to a passenger train which left the rails near Dduallt Station on the Festiniog Railway.

In this case, as the 6.15 p.m. passenger train from Duffws (Festiniog) to Portmadoc was running between Dduallt and Tan-y-bwlch Stations, the whole train was derailed, and ran along the ballast for about 60 yards before it was brought to a stand.

No passengers complained of injury, and the driver and fireman were also unhurt. The train consisted of a double bogie engine, bogie van, two bogie composite carriages, and two four-wheeled carriages in the order named. The engine was fitted with the steam brake working blocks on the four centre wheels, and the vehicles were fitted throughout with the automatic vacuum brake with blocks on all the wheels. Both brakes are controlled by the same lever on the engine, and both are stated to have been in good order.

The wheel guard of the inside front wheel of front bogie of the engine was bent and a spring of one carriage was broken. The rails were dislodged from the chairs for a distance of about 60 yards, and 79 chairs were broken, and a few sleepers damaged.

The accident occurred at 6.35 p.m.

#### *Description.*

This line was originally constructed for slate traffic only, but for the last 30 years or so it has been authorised as a passenger line. It has nominally a gauge of 2 ft., but the actual gauge is 1 ft. 11½ ins. on the straight and 1 ft. 11½ ins. on the curves, and there is practically a uniform gradient of 1 in 82 from end to end falling from Festiniog to Portmadoc.

The permanent way at the place where the accident occurred was laid with double-headed steel rails weighing 50 lbs. to the yard, and 24 ft. long, resting in cast-iron chairs weighing 18½ lbs., fastened by two spikes (4½ ins. by ⅝ in.) to half-round uncreosoted larch sleepers, of which there were nine to each length of rail. The ballast consists of river gravel and shingle, but a good deal of earthy matter is contained in it.

The train was running at the time of the accident on a left-handed curve of 4 chains radius, and with 3 ins. of super-elevation of the outer rail. The inside wheels of the leading bogie dropped into the 2-foot space, the outside wheels remaining on the rails. The inside bogie wheels then spread out the inside rails breaking the chairs as they ran over them, and so all the vehicles of the train were derailed, the last vehicle coming to rest 2 or 3 yards beyond the point where the engine left the rails.

#### *Evidence.*

*Samuel Parkins*, driver, states: I have been 30 years in the Company's employment, all the time as engine driver. I came on duty on 4th October at 7.30 a.m. to work to 7.30 p.m. I was booked off from 2 p.m. to 4.30 p.m. at Portmadoc, where I live. These are my usual hours. On 4th October I was the driver of the engine of the 6.15 p.m. passenger train from Duffws to Portmadoc. My engine was a double bogie engine fitted with steam brakes on the four centre wheels, and working automatic vacuum brakes on the vehicles. The two brakes are controlled by the same handle. On the day in question everything went right till just as the accident occurred, when I noticed the engine jump a little as if it were going over some ballast, and then I felt a knock as if the engine had dropped on to a chair, and then I applied the brakes. I was running from 10 to 12 miles an hour at the time on a curve. I stopped the train in about its own length. I got off my

engine and found all the wheels of it on the right hand side on the rails, and the leading wheel of the leading bogie and the leading wheel of the trailing bogie inside the rails. As far as I could see all the carriages were derailed with all wheels. My engine was in good running order at the time, and I have no idea as to the cause of the accident.

*T. J. Thomas*, fireman, states: I have been about 14 years in the Company's employment, of which I have been eight years a fireman. I work the same hours as Driver Parkins. I have heard his statement read over to me and I agree with it except as regards the number of wheels derailed. I saw both inside wheels of the leading bogie inside the rails, and the leading wheel of the trailing bogie was very nearly off. I have no idea as to the cause of the derailment.

*Charles Beresford*, guard, states : I have been 38 years in the Company's employment, all the time as guard. On 4th October I came on duty at 8.15 a.m. to work till 7.15 p.m., which is my normal tour of duty. On 4th October I was guard in charge of the 6.15 p.m. down train, Duffws to Portmadoc, which consisted of—engine ; bogie van, eight wheels ; two bogie composite carriages, eight wheels, and two four-wheeled carriages in the order named. The train was fitted throughout with the vacuum brake—working blocks on all the wheels—which was in good order. I was riding in the brake van next the engine. Everything went right till just before the accident occurred, when I heard a noise as though we were running over some ballast on the rails, and just afterwards the van gave a lurch and I felt we were off the line. I at once looked to the brake, but it was already on, and the train came to a stop in about its own length, i.e., 60 yards. I at once got out, and when the passengers were out of the train I looked round to see if I could see anything under the train. It was about 6.30 p.m. and, being a dull day, was dark at the time. I could discover nothing to cause the accident. No passenger complained of injury.

*Griffith Jones*, platelayer, states : I have been 18 years a platelayer in the Company's service. I am in charge of about 5 miles of the line, including the place where the accident happened. I was last over the part where the accident occurred, on September 30th, four days before the accident. I examined the curve both as to gauge and cant ; the gauge is 1 foot 11½ inches and the cant 3 inches. It was then in good order. I do not know how long the sleepers have been in use on this curve, having been in charge of it only seven or eight months. I did not come to the place where the accident occurred till the

next morning about 6 a.m. The sleepers where the accident occurred were of half-round larch, but were replaced after the accident by rectangular creosoted fir sleepers. The half-round sleepers were pretty good, but nothing like equal to new. Where the line was spread the chairs were torn from the sleepers and the spikes bent over. I saw nothing to account for the accident and no marks on the rails.

*J. H. Hovenden*, general inspector, states : I have been 40 years in the Company's service, the last 17 years as general inspector. I live exactly opposite where the accident occurred and was on the spot at once. I looked round after the accident and found all the inner chairs torn away from the sleepers and the rails dislodged. The chairs were all broken. A few of the chairs of the outer rail were broken by the carriage wheels and the chair spikes torn out in some cases. All the wheels were off the rails except two wheels of the last bogie carriage. The wheels of the bogies were all between the rails which had been spread out. The first marks of derailment were two or three yards behind the train when it had stopped, and the first mark was a broken chair on the inner rail, the next chair to that on the inner rail was not broken or marked, from that onwards the chairs were all broken and appeared to have been forced outwards. The first broken chair was one next to a rail joint. There was no damage to the outer rail until some yards further on. There was no mark on the rails where the first chair was broken, and nothing to be seen where the first chair was broken that could have caused the derailment. I remember the sleepers being put down round this curve, and it was quite five years ago. I have no idea what caused the accident. A train passed over the spot in the same direction only twenty minutes before.

### Conclusion.

Although there is no direct evidence as to the cause of this accident, yet from inspection of the line between the scene of the accident and Tan-y-bwlch station, a mile and a quarter in length, and of the sleepers that were removed from the curve after the accident, I have little doubt but that the derailment was due to the faulty condition of the permanent way at the spot, and to the excess of super-elevation of the outer rail. The authorised running speed on the line is 17 miles an hour, which is reduced to 12 miles round curves, and a super-elevation of 3 inches on the outer rail of a 4-chain curve for a speed of only 12 miles an hour would tend to bring too great a thrust on the inner rail, and to spread it outwards, as happened in this case. Fortunately no one was injured, but the derailment might have been attended with most serious results owing to the nature of the country at the place ; had the engine turned to the left it would have gone over a retaining wall and fallen a distance of quite 20 feet.

There is no reason to suppose that the train was running at more than the authorised speed of about 12 miles an hour at the time of the accident, and feeling his engine drop off the rail the driver at once applied his brakes and brought the train to a stand in a space of about 60 yards. No blame, therefore, attaches to Driver Parkins in any way.

This mishap will, it is hoped, cause those responsible for the condition of the line to take immediate steps to place the permanent way in the most perfect condition possible, this being necessary not only on account of the unusual risks due to the steep gradient and precipitous nature of the country, but also because the narrowness of the gauge reduces the bearing area of the sleepers on the ballast. Also additional superintendence of the platelayers seems most necessary.

I have been informed by the general manager that he had decided before the accident occurred to carry out the following improvements, viz. :—

1. Relay the whole line with rectangular creosoted sleepers of Baltic red timber in lieu of the half-round uncreosoted larch sleepers. A portion of the line has already been so relaid.

2. Provide the sharpest curves with longer sleepers and guard rails.
3. Provide broken stone ballast for the sharp curves, and where the drainage is difficult.
4. Improve the drainage wherever possible.
5. Provide compressed oak wedges in lieu of uncompressed pitch pine wedges.
6. Provide new fishplates where required. Also to appoint a new foreman platelayer to carry out the above, and to look after the platelayers generally, and repairs to the permanent way.

I trust that no time will be lost in carrying out the above, as, judging by what I saw, they are most necessary for the safe working of the line.

I have, &c.,  
E. DRUITT,  
Major, R.E.

The Assistant Secretary,  
Railway Department,  
Board of Trade.

Printed copies of the above Report were sent to the Company on the 15th November.

## GREAT EASTERN RAILWAY.

Board of Trade, Railway Department,  
8, Richmond Terrace, Whitehall, London, S.W.,  
17th January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 2nd January, the result of my enquiry into the circumstances under which a collision occurred at about 7.48 p.m., on the 28th December, between a passenger train and the buffer-stops at Cromer Station on the Great Eastern Railway.

In this case, as the 6.45 p.m. train from Norwich to Cromer, consisting of an engine, tender, and seven vehicles, was entering Cromer Station, the driver failed to bring it to a stand before it came into collision with the buffer-stops at the termination of the arrival platform line.

The speed at the time of the collision must have been small, as the damage sustained by the engine and train was but slight, and only two wheels of the train, viz., those of the third vehicle from the engine, were derailed.

Seven passengers are reported to have received slight personal injuries, but none of these have made any complaints to the Company on the subject.

The engine of the train was a four-wheels-coupled tender engine, fitted with the Westinghouse brake, working blocks on the four coupled wheels and on the six tender wheels, and with a hand brake working the blocks on the tender wheels.

The train consisted of the following vehicles attached to the engine in the order given :—

							Wheels.
1 3rd-class carriage	...	...	...	...	...	...	6
1 1st-class carriage	...	...	...	...	...	...	6
1 composite	...	...	...	...	...	...	6
1 3rd-class carriage	...	...	...	...	...	...	8
1 brake van	...	...	...	...	...	...	6
1 brake van	...	...	...	...	...	...	6
1 3rd-class carriage	...	...	...	...	...	...	6

The train was fitted with the Westinghouse automatic brake, working blocks on four wheels of each of the six-wheeled vehicles and on all the wheels of the eight-wheeled vehicle.

All the brakes are reported to have been in excellent order.

The damage to rolling stock is given in the Appendix ; that to the permanent way consisted in the destruction of the buffer-stops.

*Description.*

Cromer Station, where this collision occurred, is the terminal station on the Norwich-Cromer branch of the Great Eastern Railway. The station is provided with arrival and departure lines, which run into the station in a direction which is approximately east and west, the arrival line, on which this accident occurred, being on the north side. The line terminates in buffer-stops at the east end of the station, and the arrival platform extends to a distance of 190 yards from these stops.

The signal box is on the south side of the line about 20 yards to the westward of the end of the arrival platform.

The arrival line is provided with distant and home signals, and the following are the distances from the buffer-stops to the various points referred to in this enquiry :—

	Yards.
From buffer stops to end of arrival platform ... ..	190
From buffer stops to signal box ... ..	210
From buffer stops to underbridge ... ..	260
From buffer stops to home signal ... ..	310
From buffer stops to overbridge ... ..	400
From buffer stops to distant signal ... ..	1,114

The next station to Cromer is Gunton, distant  $4\frac{1}{4}$  miles. The gradient for a train approaching Cromer is a rising one from Gunton Station up to a point distant 1,483 yards from Cromer. At this point it changes to a falling gradient of 1 in 455, which continues for a distance of 800 yards; the gradient then changes first to a falling one of 1 in 200 for 256 yards, then to a falling one of 1 in 154 for 352 yards, and finally to a falling one of 1 in 861 for 75 yards up to the buffer-stops. The gradient into the station is thus a falling one varying from 1 in 861 to 1 in 154 for the last 1,483 yards of the approach to the station.

The approach to the station is round a curve, so that the driver's view of the station itself is somewhat restricted, but he obtains an excellent view of his signals as he approaches them.

The night on which this accident occurred is reported to have been a dark dirty night, and rain was falling at the time of the collision.

The train to which the accident occurred is timed to leave Gunton at 7.32 p.m., and to arrive at Cromer at 7.42 p.m., thus accomplishing the distance of  $4\frac{1}{4}$  miles in 10 minutes, *i.e.*, at a speed of about 25 miles an hour.

*Evidence.*

*Thomas Harwood*, driver, states: I have been 40 years in the service of the Company, during 33 of which I have been a driver. On the 28th December I was driving the 6.45 p.m. train from Norwich to Cromer. I came on duty on that day at 2 p.m. to work till 11.20 p.m. On the 27th I came off duty at 9.10 p.m. My engine was a four-wheels-coupled tender engine fitted with the Westinghouse brake, working blocks on the four coupled wheels, and on the six tender wheels, and with a hand-brake working blocks on the tender wheels. My brake was in good order, and I tested it before leaving Norwich. We left Norwich at 6.50 p.m., which was five minutes late. Nothing unusual happened on the journey. We stopped at all stations between Norwich and Cromer. At every station I made use of my brakes. My brakes were in very good order, and they acted well. It was a very wet and dark night, and the rails were very greasy for most of the way, and I knew that they were greasy. We arrived at Gunton, which was the last station before reaching Cromer, six minutes late. As far as I know we ran at the usual speed from Gunton to Cromer, *i.e.*, a little over 25 miles per hour. I arrived at Cromer at 7.48 p.m., having taken just ten minutes on the journey from Gunton. When I passed the distant signal I shut off steam and I never applied steam again at all. I made a miscalculation of 50 yards, and

did not apply the brake until I was 50 yards further than I thought I was. I first applied the brake when we were just passing the overhead bridge. I generally make a practice of applying the brake about 50 yards before I come to the bridge, but on account of the night being dark I misjudged a few yards on this occasion, and did not apply my brake soon enough. I estimate my speed on passing under the bridge at 25 miles per hour. Just as we passed the home signal the tender wheels skidded, and on passing the signal-box the driving and trailing wheels of the engine skidded also. After that my engine and tender skidded the whole length of the platform, resulting in our running into the buffer-stops at a speed which I estimate from one-and-a-half to two miles per hour. The rails were very greasy and slippery the whole way into the station. All the way down into the station my mate was applying the sand. I had a plentiful supply of it. Passing the signal-box I reversed the engine and gave her steam, but it did not seem to have any effect. I did not release my brakes at all, because I was afraid of doing so for fear I should go still further. I was not at all injured by the collision. My engine was only slightly damaged. I admit I am to blame in the matter for not having the train under sufficient control when entering the station. I estimate my speed on passing the home signal at about 15 miles

per hour, and at the signal-box at from ten to 12 miles per hour. At the time we passed the signal-box my mate, who usually gives up the tablet, was engaged in sanding. He did not make any attempt to hang the tablet on the catch. I think that in another three or four yards I should have brought my train to a stand. I am accustomed to running on the line between Norwich and Cromer, and am acquainted with the gradients leading into Cromer Station. I applied my brakes gently when passing under the overbridge, and shortly afterwards applied them fully, *i.e.* before we reached the home signal.

*George Harboard*, fireman, states: I have been 13 years in the service of the Company, during 6½ of which I have been a fireman. On the 28th December I was fireman on the 6.45 p.m. train from Norwich to Cromer. I worked the same hours on that day, and the previous day, as Driver Harwood. When travelling between Norwich and Cromer the brakes on my train appeared to act well. The driver turned off steam at the usual place, *viz.*, the distant signal, and he did not turn it on again before the collision occurred. I believe the brakes were first applied near the overhead bridge. I estimate our speed when passing under the bridge at about 25 miles per hour. I cannot say whether the brakes were applied fully there or not. They appeared to act and check the speed of the train. I noticed when we were passing under the overhead bridge that we were travelling a bit too quick. I mentioned to the driver that I thought we were going too fast. I applied my hand-brake and also opened the sanders. I cannot say whether the driver had the automatic brakes applied at the time at which I applied my hand-brake. Between the bridge and the box I noticed the wheels began to skid. I continued to work the sand frequently. I noticed that the driver reversed the engine, and I believe he gave her back steam. I estimate our speed when passing the signal box about 15 miles per hour. When I passed the signal box I did not attempt to give up the tablet as I was too busy working the sanders. I cannot say what our speed was at the time of the collision, but we should have stopped in a very short distance. I know the line well and am accustomed to running on it. Up to the time we reached the overhead bridge I did not notice there was anything unusual in the speed of the train. It was a dark night with a drizzly rain. The rails were in a very greasy condition the whole way from Norwich, but we had had no difficulty in pulling up at any of the intermediate stations.

*Frederick Charles Brett*, guard, states: I have been 15 years in the service of the Company, during 6½ of which I have been acting guard. On the 28th December I was guard of the 6.45 p.m. train from Norwich to Cromer. I came on duty on the 28th at 8.46 a.m. to work till 9.12 p.m. I came off duty on the 27th at 6.30 p.m. My train consisted of seven vehicles attached to the engine in the order given:—

	Wheels.			
One third-class ... ..	...	...	...	6
One first-class ... ..	...	...	...	6
One composite ... ..	...	...	...	6
One third-class ... ..	...	...	...	8
One brake-van ... ..	...	...	...	6
One brake-van ... ..	...	...	...	6
One third-class ... ..	...	...	...	6

My train was fitted with the Westinghouse automatic brake working blocks on four wheels of

each six-wheeled carriage, and on the eight wheels of the bogie carriage. The brakes were in good order. Nothing unusual happened between Norwich and Gunton. The train went at about the usual speed. No difficulty was experienced in stopping at any of the intermediate stations, and the brakes acted well. On approaching Cromer station, I noticed that inside the distant signal the train was travelling rather faster than usual, *i.e.*, between the distant signal and the overbridge. I cannot estimate its speed. Some distance before we reached the overbridge I applied my hand-brake. I did not apply the Westinghouse brake because I did not consider it necessary. Just as we reached the overhead bridge I looked out of the window to see where we were, and I saw we were at the bridge. I at once went to the tap to apply the Westinghouse brake, but before I could do so I saw that the driver had done so. It was fully applied. I cannot estimate our speed at this point. The brakes appeared to act and reduce the speed of the train, but I noticed that the wheels skidded. I screwed my brake on tighter, but took no further steps. I saw that a collision was going to take place and I jumped out of my van on to the permanent way, just before the collision took place. I estimate the speed of the train at the time of the collision at from 10 to 15 miles per hour. I ran when I jumped off so did not tumble down. The train was not much damaged, but two wheels of the fourth vehicle from the engine were off the line. I myself was riding in the brake-van which was the fifth vehicle from the engine. It was raining at the time. Between Norwich and Cromer I knew that the rails were greasy, but no difficulty had been experienced in stopping the train. I am accustomed to running into Cromer Station, and I am of opinion that the speed when passing the distant signal was higher than usual. I did not receive any complaints of injuries from any passengers. The reason I tightened my brakes was, that I was afraid the driver might release his Westinghouse brake and release mine. It never occurred to me to release my brake and put it on again. I think that the engine was about a carriage-length from the buffer stops when I jumped out. I jumped out on to the permanent way as I thought it was the safer side. Our time of leaving Gunton Station was 7.41 p.m. The time at which the collision occurred was 7.48 p.m. I took the time directly the accident happened.

*Charles Bradbrook*, signalman, states: I have been 17½ years in the service of the Company, during about 11 of which I have been a signalman. I am stationed at Cromer and was on duty in the signal-box at Cromer Station on the evening of the 28th December. I came on duty on the 28th at 10.30 a.m. to work till 10.30 p.m. I had come off duty on the 27th at 10.30 p.m. I remember the 6.45 p.m. train from Norwich to Cromer arriving at my station. I first noticed it when it was close to the home signal. The moment I saw it, it struck me it was going too fast to stop at the proper place. When it passed my box I should say its speed was about 30 miles per hour. I cannot say whether steam was turned on, or whether the brakes were applied at that time. It did not seem to check speed when it passed my box, but when approaching the buffer-stops it did seem to do so. I watched the train up to the time the collision actually occurred. I cannot estimate the speed at the time of the collision. I did not notice what the driver and fireman were doing at the time they passed my box. After the train had passed I went down to take the tablet off the receiving apparatus, but the

tablet was not there. I did not notice whether either the driver or fireman tried to put the tablet on the receiving apparatus. I am distinctly of opinion that the speed of the train when passing my box was much greater than usual. It was a very dirty night; rain and mist; and I should say the rails were very wet. A train had arrived from Norwich about 7 p.m., and had drawn up at the same platform as the 6.45 p.m. train. As far as I know, it had experienced no difficulty in stopping, but it passed my box at a distinctly more moderate rate of speed than the 6.45 p.m. train. The time the train passed my box was 7.48 p.m.

*Herbert Griffen*, porter, states: I have been 10½ years in the service of the Company, during the whole of which time I have been a porter. I was on duty at Cromer Station on the night of the 28th December, and I saw the 6.45 p.m. train from Norwich run into the station. I was standing on the ballast opposite the end of

the arrival platform. I saw the train pass the home signal, and I noticed she was coming extraordinarily quick. She did not appear to check speed whilst approaching me. I was standing in the same place when the train passed me, and I estimate her speed when passing me at from 25 to 30 miles per hour. I noticed that when the train came over the bridge the brakes were on, but whether they had been applied previously or not I cannot say. I watched the train up to the time the collision occurred. I estimate the speed of the train when it struck the buffer-stops at 15 miles per hour. It was a dirty night and very dark, and the rails were very wet. I have been employed about three-and-a-half years at Cromer. I have never seen a train run into Cromer Station at the speed which this train did. When the train passed me it did not occur to me that it would not be able to stop at the buffer-stops. I did not see the guard jump out of the train. I did not notice what the driver and fireman were doing when they passed me.

### *Conclusion.*

Driver Harwood, who was in charge of the engine of the train, candidly admits that the collision was due to his not having his train sufficiently under control when entering Cromer Station. He states that he misjudged his distance when approaching the station, and consequently did not apply his brakes soon enough.

The train left Norwich at 6.50 p.m., which was five minutes late. Nothing unusual occurred during the run from Norwich to Gunton; the train stopped at all intermediate stations, and both the driver and guard concur in stating that the brakes acted excellently, and that no difficulty was experienced in bringing it to a standstill at any of those points.

Driver Harwood states that the train left Gunton at 7.38 p.m., but Guard Brett states that the time was 7.41 p.m. The register book in the signal box at Gunton gives 7.43 p.m. as the time at which the train passed that box, and the book in the Cromer box gives 7.43 p.m. as the time at which the "Train entering section" signal was received at that box from Gunton. Under these circumstances it may, I think, be accepted that 7.42 p.m. was about the time at which it left Gunton.

As regards the time of reaching Cromer, Signalman Bradbrook, who was on duty in the Cromer box, states that the train passed his box at 7.48 p.m., and both the driver and guard give this as the time at which the collision occurred.

It appears, therefore, that the distance between Gunton and Cromer—4¼ miles—was accomplished in about 6 minutes, instead of the booked time of 10 minutes. Even making an allowance for the times recorded not being quite accurate, it is evident that the speed of the train over that section was considerably over its authorized amount.

Driver Harwood states that at the distant signal he turned off steam, and that when passing under the overbridge, distant 400 yards from the buffer-stops, he applied his automatic brake. He admits that he usually applies his brake before reaching this point, but he states that on this occasion, owing to the darkness of the night, he did not realize how far his train had travelled. The wheels then skidded, and, though Harwood reversed his engine and gave it steam, he was unable to stop it before it came into collision with the stops.

There appears, therefore, to be no doubt that, as admitted by Driver Harwood, he had not got his train sufficiently under control when approaching Cromer Station, and it seems probable that this result was due to his having allowed his train to travel at too high a rate of speed from Gunton. The responsibility for this collision must, therefore, rest solely on him. The Company give him a good character, and he had been on duty six hours at the time of the accident.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
*Lt.-Col., R.E.*

## APPENDIX.

## DAMAGE TO ROLLING STOCK.

Engine, No. 490.—Buffer socket broken.  
 Third-class, No. 1,019, Great Eastern Railway.—  
 1 headstock broken.  
 Brake van, No. 406, Great Eastern Railway.—  
 1 headstock broken; 1 buffer rod bent; 4 axle-  
 box bottoms broken.  
 Brake van, No. 44, Great Eastern Railway.—  
 1 headstock broken; 2 end panels, end pillars  
 and end rail broken; 3 buffer rods bent; 1 axle-  
 box bottom broken.

Lavatory third-class, No. 1,770, Great Eastern  
 Railway.—1 headstock and 1 door-window broken;  
 3 buffer rods bent.  
 Bogie composite, No. 590, Great Eastern Rail-  
 way.—Lavatory door fastenings broken: 2 buffer  
 rods bent.  
 First-class, No. 488, Great Eastern Railway.—  
 Buffer packing and headstock damaged.  
 Lavatory third-class, No. 1,677, Great Eastern  
 Railway.—2 headstocks broken.

Printed copies of the above Report were sent to the Company on the 15th February, 1902.

## GREAT NORTHERN RAILWAY.

Board of Trade (Railway Department),  
 8, Richmond Terrace, Whitehall, London, S.W.,  
 28th January, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compli-  
 ance with your Order of the 2nd January, the result of my inquiry into the causes of the  
 collision which occurred on the 28th December, 1901, between a passenger train and a  
 goods train at King's Cross Station, on the Great Northern Railway.

In this case, just as the 3.48 p.m. passenger train had started from platform line E,  
 it was run into by the 3.39 p.m. goods train from Farringdon Street.

The passenger train consisted of a four-wheels-coupled engine with leading axle, and  
 six-wheeled tender, fitted with the automatic vacuum brake on the four coupled wheels of  
 the engine and six tender wheels, and with hand brakes on the six tender wheels, and of  
 the following vehicles:—

	Wheels.						
Van	...	...	...	...	...	...	6
Composite carriage	...	...	...	...	...	...	8
Third	...	...	...	...	...	...	6
First	...	...	...	...	...	...	6
Third	...	...	...	...	...	...	6
First	...	...	...	...	...	...	6
Composite carriage	...	...	...	...	...	...	8
Third carriage brake	...	...	...	...	...	...	8
Covered truck	...	...	...	...	...	...	4
Horse box	...	...	...	...	...	...	4

fitted with the automatic vacuum brake on the four outside wheels of all vehicles except  
 the truck and horse box, which were not fitted with brake blocks.

The goods train consisted of a four-wheels-coupled tank engine with trailing bogie,  
 fitted with the automatic vacuum brake on the four coupled wheels, and of 15 loaded  
 waggons and a 20-ton brake.

The three rear passenger vehicles of the passenger train, and the two waggons next  
 the engine of the goods train were derailed.

Five passengers complained of injury.

The accident occurred at 3.49 p.m.

Details of damage to rolling stock and permanent way are given in the Appendix.

*Description.*

The various lines out of King's Cross Station run approximately from south to north,  
 the suburban lines being to the west of the platform lines.

The two lines concerned in this case, are platform line E, and suburban line B.

The platform line E connects with the down main No. 1 and the down main No. 2,  
 and the suburban line B with the down main No. 2 and the down slow.



The starting signals for each are near the north end of the respective platforms, situated under a rather low over-bridge, those for the suburban line being suspended from the underside of the bridge.

The points leading from the suburban line B lie normally for the down main No. 2, and are locked in either position by the home signal for the west box as well as by the starting signals.

The distant signal is led only by the home signal, and not by the starting signals as well, as, owing to the steep gradient, a train could not be brought to a stand at the home signal without danger of getting off the rails at the catch points when starting again. A train is never accepted by west box until the section is clear to the starting signal, and the block instrument is locked by a treadle in front of the box, so that a second train cannot be accepted by west box until the previous train has passed over the treadle.

The fouling point of trains approaching the down main No. 2 from suburban line B and platform line E simultaneously, is about 60 yards ahead of the suburban line starting signals.

The signals for, and the connections between, the platform line E and the down main lines Nos. 1 and 2, and between the suburban line B and the down main No. 2 and the down slow lines, are worked from the west signal box which is on the east side of the departure lines, a short distance beyond the platform, and the points concerned lie nearly opposite this signal box.

The wires from the west signal box to the suburban line B starting signals, are carried under the rails of the departure lines and supported by pulleys to the far side of the line from the signal box, and then along the base of a wall where they are supported by hanging pulleys secured to the trestles carrying the trunking boards.

There are several wires running parallel to each other, but every wire is carried on a separate pulley.

#### *Evidence.*

*Edward William Lord*, passenger guard, states : I have been in the Company's service 17 years and a passenger guard 10. On Saturday, 28th December, I came on duty at 3.20 p.m. and should have booked off at 11.38. Previous to coming on duty I had eight hours rest. I was in charge of the 3.48 p.m. train from King's Cross to Peterboro', which consisted of :—

	Wheels.
Main line van ... ..	6
Composite carriage ... ..	8
Third ... ..	6
First ... ..	6
Third ... ..	6
First ... ..	6
Composite carriage ... ..	8
Third carriage brake ... ..	8
Covered truck } London, Brighton }	4
Horse box } and South Coast }	

and I rode in the rear brake, the last two mentioned vehicles being behind it. The train was fairly well filled. We left King's Cross "E" platform right time. After getting a signal from the inspector to start I saw that No. 2 main line signal was off for my train to go right away. After the train started I exchanged signals with the front guard on the platform side, then went to the opposite side to look out, but before I could get the window open I felt my brake rock. The train came to a stand before I could apply the brake, but I heard the vacuum brake going on just as we stopped. I found my brake van off the road and leaning very much over to the right nearly on its side. The carriage in front of my brake was off the road and leaning over to the right and the carriage in front of that was also off the road, but standing upright across the road. As soon as I saw there was no other train coming I helped the passengers to alight. I should say there were from 30 to 40 passengers in the three vehicles which were off the road. I saw nothing of the goods train with which we came into collision until after the accident, nor did I see

anything of the signals controlling trains starting from the suburban platform until after the mishap. I then looked at the suburban station signals and saw that one was off, but cannot now say which. I could not tell at first where the goods train had come from. A new train was made up and I worked it forward to Peterboro', attaching the front van from the original train in which the luggage had been loaded up. This train left King's Cross at 4.16. No complaint was made to me by any passenger of personal injury.

*Arthur Henry Paine*, passenger guard, states : I have been in the Company's service four years and a passenger guard seven months. On Saturday, 28th December, I booked on duty at 9.20 a.m. and should have left duty at 9.13 p.m. Previous to coming on duty I had 12 hours rest. I was front guard of the 3.48 p.m. train from King's Cross, which was fitted throughout with automatic vacuum brake in perfect working order. We left King's Cross ("E" platform) right time, and before starting I saw the signal at the tunnel mouth off for No. 2 road. After starting I exchanged signals with the rear guard, and was putting up my window when I felt a jerk. I opened the window again to see what had happened, when we came to a stand. We did not run more than two coach-lengths after I first felt the shock, and the train stopped with my brake just in the tunnel. Directly I felt the jerk I looked at the vacuum indicator and saw that the brake was on. I found that my brake and the three carriages next to it had broken away from the rest of the train, and that a goods train had run into the rear portion. The vehicles which had broken away had not left the road. I got out on the wall side, and went back to the rear to meet my mate. Some of the passengers were getting out and asked us what was the matter, and I requested them to keep their seats. I remained with the front portion of my train on



instructions from the King's Cross inspector, and the three vehicles were shunted back into No. 2 road on to a fresh train which was being formed to go forward to Peterboro'. I should think there were between 60 and 70 passengers in the front portion of the train, but I am unable to say how many there were in the three vehicles which left the road. I did not see the signals controlling trains from the suburban station either before or after the accident.

*William Franklin*, engine driver, states: I have been in the Company's service 40 years and a driver 35. On Saturday, 28th December, I booked on duty at 10.15 a.m., and should have booked off at 8.40 p.m. Previous to coming on duty I had 11½ hours rest. I was driver of the 3.39 p.m. goods train from Farringdon Street which consisted of 15 waggons and a 20-ton brake, and my engine (No. 821) was a four-wheels-coupled tank engine, with bogie at trailing end, running chimney first, and fitted with automatic vacuum brake, with blocks on all the wheels with the exception of the bogie. We left Farringdon Street a few minutes late waiting signals, but had a clear run past Granville, King's Cross Metropolitan and Midland Junction, all signals being off, including the starting signal from the suburban to slow. On running through the suburban station I saw the left hand signal, i.e., the one applying to the slow road, off. I first sighted this signal when my engine was about half-way up the platform, and it was then distinctly off. I was about 40 to 50 yards away from it. I was preparing to stop had it been on. As soon as I saw the signal off, I touched my whistle three times to let the signalman know that I wanted to go to Clarence Yard, but I cannot say whether I gave a single whistle as acknowledgment that the signal was off, although it is my practice to do so. I did not notice the position of the points at the north end of the suburban station as there was a lot of steam about, and did not find that we had *not* gone on the slow road until we were just on the point of coming into collision with a passenger train out of the local station. I had barely time to apply the vacuum brake and reverse the engine before the collision took place. The effect of the collision was to throw two of the passenger carriages partly over, and the two waggons next my engine off the road, the second vehicle being on its side across the metals. The buffer plank and step of my engine were also broken off. In drawing up to the starting signal at the suburban station, I asked my fireman if it was off, and he said it was. I also looked myself and found it was off. It is our practice to look out for this signal on emerging from the tunnel, and to ask the fireman if it is off as he is in a better position to see it. I am positive that the signal was off before the accident, and remained off for some considerable time afterwards. It was very thick under the bridge just at the time, owing to the steam from the passenger train blowing on to my engine, and I did not see the signal at the tunnel mouth. I was not hurt at all by the collision. I should say the passenger train pulled my train a short distance.

*Henry Sales*, fireman, states: I have been in the Company's service eight years, and a fireman four. On Saturday, 28th December, I came on duty at 10.15 a.m. and should have booked off at about 8.40 p.m. Previous to coming on duty I had 11½ hours rest. I was fireman with driver Franklin with the 3.39 p.m. goods train from Farringdon Street. We left Farringdon Street

two or three minutes late, but I think the signals were off for us at Granville, King's Cross Metropolitan and Midland Junction. On approaching the suburban station I was looking out for the starting signal at the north end of the platform, and when the engine was about half-way up the platform, I saw that the slow road signal was off. I believe I told my mate that the signal was off, but cannot say whether he touched his whistle when he knew that the signal was off, although it is the practice to do this. He *did* give three whistles to indicate to the signalman that the destination of the train was Clarence Yard. Both the driver and myself were looking out for the starting signal, and both of us saw it was off. Our speed before we sighted the signal would be that of a sharp walking pace, and we were preparing to stop at the signal had it been on. We were looking out for the signal at the tunnel mouth, but it was very difficult to see it on account of smoke and steam. I was not aware that we had been turned on to the main line until we were just on the point of colliding with the passenger train. We just had time to apply the vacuum and hand brakes. The driver applied the former and I the latter. The driver had shut off steam, and reversed the engine when we were within a few feet of the passenger train. After the accident I noticed that the signal was still off. The driver did not ask me whether the signal was off when approaching the suburban station, but I told him myself that it was. This is the left-hand signal of the two.

*William Neal*, signalman, states: I have been in the Company's service 30 years, a signalman 27, and at the West box 20 years. On Saturday, 28th December, I was on duty from 2 p.m. to 10 p.m., and previous to coming on duty had 16 hours rest. I had two assistants on this occasion, and a booking boy, and was in charge. A passenger train from the city passed off the suburban station by the slow line at 3.43 p.m., and after this train had passed I put the signal lever back in the frame, and reversed the points from slow to main in the usual way, but did not see whether the arm responded on account of the smoke. The lever remained in that position when the goods train was offered and accepted by me from the Metropolitan Junction at 3.46 p.m., and I booked this train as arriving at my starting signals at 3.49 p.m. by hearing the one pop on the whistle. I could not see the engine on account of the steam. I had pulled off the distant and tunnel mouth stop signals for it to proceed, but kept the starting signal at danger. The reason for keeping the latter signal against the goods train was that two engines, which left "C" platform at 3.48 p.m., had passed from fast to slow and were not clear. There was a lot of steam under the bridge at this time, which had come from the engine of the 3.48 p.m. passenger train, which was then standing attached to its train, and I did not see the goods train coming up the Suburban Station, but heard what I took to be the engine give one short whistle. I pulled off the distant because it is the usual practice to do so, as there is a steep bank up and trains might stick and get off at the catch points. The distant signal is led only by the home, and not by the starter as well. A train is never accepted from the Hole-in-the-Wall box until the section is clear to the starting signal, and the block instrument is locked by a treadle in front of my box, so that I cannot accept a second train until the previous one has passed my box. I lowered the starting signal for the 3.48 p.m. train to leave "E" platform exactly to time, the train having previously been accepted

by Belle Isle, and I saw that the signal was off by the indicator in the box. I could not see the train until it was passing the box, and then I saw the goods train coming towards it, and the engine of the latter running into the passenger train. When I saw that an accident must happen I looked to see the position of the starting signal lever, and it was back in the frame. I could not see the arm of the signal itself, but almost directly the engine of the goods train struck the passenger train, I noticed it was off. After the collision I called the attention of my assistants to the position of the starting signal. I did not touch the lever after the accident, but the signal remained off nearly an hour. I called the attention of the telephone linesman at once to the position of the arm, and asked him to go for the signal-fitter, and also pointed it out to Inspector Brittain when he came about half an hour later. The driver of the goods train did not whistle three times just before the accident, but only gave a short whistle, which I took to be an acknowledgment of the signal being off. So far as I know, this signal has never failed before, nor have I had any complaints from any driver about it. I have not heard that my mates have had it fail. It has always responded to the lever. On this occasion the lever was put back in the frame in the usual way, and I cannot give any explanation as to why the signal arm remained off. The speed of the goods train at the time of the collision was considerable.

*John Robert Charter*, goods guard, states: I have been in the service nine years, and a goods guard four. On Saturday, 28th December, I came on duty at 10 a.m., and should have finished at 8.15 p.m. Previous to coming on duty I had 13 hours rest. I was guard of the 3.39 p.m. goods train from Farringdon Street, and the train consisted of 15 loaded waggons, and a 20-ton brake. We left Farringdon Street at 3.42—three minutes late waiting signal—but had a clear run past Granville, King's Cross Metropolitan and Midland Junction. As we ran into King's Cross Suburban Station, I was looking out of the window of my brake van on the platform side for the starting signal and saw that the slow road signal was off, just as my brake van was passing the inspector's office. I saw both the arm and the light, the former was off, a good signal, and the light showed all green. This was before anything irregular had taken place. I was unable to see the signal any sooner on account of the steam and smoke from the tunnel. I am positive that the signal was off. I was standing with my hand on the brake looking for the signal and ready to apply the brake should it be on. We are very careful to apply the brake when trains are brought to a stand at the signal in order to prevent any running back. Our speed through the suburban station was not more than five or six miles an hour. When my van was opposite the northern end of the buildings on the suburban platform, I felt that something was wrong, the waggons of my train being buffered up whilst I was jerked back in the brake. I was somewhat bruised, but otherwise unhurt. I put my brake on and went forward to see what had happened, and found that we had collided with the 3.48 p.m. passenger train from the local station. I thought it strange that we should have the slow road signal off, and yet take the main line points, and after the accident I told the driver that the "board was off for the slow road before the collision occurred, and was still off after the accident." The waggon next to the engine of my train was off the road, and across the metals, the second (a Great

Northern refrigerator van) was off the road and on its side, the third vehicle was another refrigerator van, but this was not off the road. The next four were North-Eastern refrigerator vans, and were not damaged, but the eighth waggon was locked, buffered with the one behind it, and the buffer broken. As my train ran through the suburban station I did not hear a whistle from the driver, either as an acknowledgment that the signal was off, or as an intimation to the signalman as to our destination. So far as I know, the driver saw the starting signal as soon as he got to the suburban station, and there was no necessity for him to shut off steam.

*Inspector Hartnell* states: I have been in the Company's service 35 years and an inspector 26. On Saturday, 28th December, I was in charge of the suburban station, and was on the platform when the 3.39 p.m. goods train from Farringdon Street passed through. I noticed the driver was drawing up very steadily and watched, because of the gradient, but cannot say whether there was any whistle or not from the driver. I saw that the slow road signal was off when the engine was close to it. The engine may have been passing it at the time. I cannot say if I saw the arm, but I did see the light quite plainly; it was showing a fair green light. After the whole of the train had passed I heard a noise, and thought the train had probably broken loose, and ran up to the front part to see what really was the matter. I then found that the goods train had taken the main line and collided with the 3.48 p.m. passenger train. I looked at the slow road signal again after the accident and saw that it was still off. I afterwards assisted the passengers out of the carriages which were off the road, but there were not more than a dozen passengers in the carriages when I reached them, as some had got out before. I have not the slightest doubt that the slow road signal was off before the mishap. I have never known this signal to fail before, and have had no complaint.

*Thomas Joy*, engine driver, states: I have been in the service 30 years and a driver 19. On Saturday, 28th December, I came on duty at 9.35 a.m., and should have worked until 8.30 p.m. Previous to coming on duty I had 21 hours rest. I worked the 3.48 passenger train from King's Cross with engine 894, which was a four-wheels-coupled engine with leading axle, running chimney first, and a six-wheeled tender. We left King's Cross right time, and as my engine was entering Gas Works Tunnel I felt a sudden jerk and the brake being applied from the rear. I put on steam again, but immediately shut it off and applied the brake, thinking the rear portion of the train was off the road. When we came to a stand my engine, the first coach, and part of the second were inside the tunnel. After we had stood a few minutes I got off the engine and walked back a short distance when I saw a lot of people on the ballast and some of the coaches of my train off the road. I then went back to my engine and shortly afterwards an inspector came and told me what had happened, at the same time instructing me to draw ahead over the points and set back to No. 2 departure platform. A fresh train was afterwards formed in place of the one originally intended for the 3.48, and I worked this to Peterboro'. I could see all my signals plainly, but did not notice the suburban signals when I was starting from King's Cross.

*George Botterill*, fireman, states: I have been in the service 12 years and a fireman six. On

Saturday, 28th December, I came on duty at 9.35 a.m. and should have worked until 8.30 p.m. Previous to coming on duty I had 21 hours rest. I was fireman with driver Joy on the 3.48 p.m. train from King's Cross. After leaving King's Cross, and as we were entering Gas Works Tunnel, I felt the brake give a sharp jerk. My driver opened the regulator, but immediately after, thinking that part of our train was off the road, shut it again. I did not notice the suburban line signals as we were starting from King's Cross, but heard an engine whistle two or three times, apparently from the suburban line. Our speed on entering the tunnel would be about six miles an hour.

*Thomas Brittain*, signal inspector, states: I am inspector of the south section of the southern division of the Great Northern Railway. I was sent for at 4.3 p.m. on Saturday, 28th December, and arrived at the West signal box, King's Cross,

at 4.20 p.m. I asked signalman Neal how the accident happened, and he replied No. 14 signal stuck off. I looked at the signal and saw it was off, although the lever was back in the frame. I then went over to the lever plate, at the foot of the wall, and I saw that the lever of No. 14 signal was up. I put my foot on it, and it would not go down. I then stamped on it, and it went down, and the signal went to danger. I subsequently examined the wires leading from the signal box to the lever plate, and found nothing to account for the signal sticking off. The derailed carriages did not stand on the signal wires at all. The signal, after I forced the lever down, and before the boxing was removed, worked quite well, and nothing has been done to it since. I have never heard of that particular signal sticking off before, and I have no idea what caused it to stick this time. There are no detectors at No. 16 facing points. The reason there are no detectors is on account of want of room.

### *Conclusion.*

The events leading up to this collision were as follows:—

A down passenger train left the suburban line station and passed on to the down slow line at 3.43 p.m., and after this train had passed the west box, signalman Neal states that he put back the lever working the starting signal for the down slow line, and reversed the points so as to lead to the down main No. 2 in the usual way, but owing to the amount of smoke and steam hanging about under the bridge in which the signal arm is placed, he could not see whether the arm responded to the lever, and, by some means, the signal arm stuck and remained off.

At 3.46 p.m., Neal accepted the Farringdon Street goods train from Metropolitan Junction, the signal box in rear on the suburban line, and pulled off his distant and home signals for it, but states he did not pull over the lever working his starting signal, which should thus have been at danger.

At 3.48 p.m., two engines followed the passenger train on the down slow line.

At 3.48 p.m., Neal lowered the signal for the passenger train to start from platform line E, which it did, almost to time, and went on to the down main No. 2 line.

When the driver of the goods train was running slowly through the suburban station, he saw that the starting signal for the slow line (on which he had to go), was off for him, accordingly he proceeded, and as the points were set to lead on to the down main No. 2, his train took that road, and he did not discover it until just as he was coming into collision with the passenger train. He had barely time to apply his brakes when the collision occurred.

When the wire leading to the down slow line starting signal was examined immediately after the accident by the signal inspector, no cause could be found for the arm being off, while the lever was back in the frame, and it was not due to any of the derailed carriages pressing against the wire where it was carried under the rails. When the signal inspector went to the lever-plate fixed to the foot of the wall alongside the starting signal in question, he found the lever up, and put his foot on it, but it did not go down. He then stamped on it and it went down, and the arm went to danger. The signal then was found to be in good working order, and nothing further was done to it. The wire was found to be in good order and no strand was found broken or anything to cause the wire to be hung up.

Owing to the wires to the starting signals crossing under the rails just ahead of the starting signals of all the lines, a large quantity of ashes and sand is dropped by engines along the rails over the wires, which finds its way through the joints of the trunking protecting them, and I think that some cinder must have caused the wire to jam in one of its supports. It is impossible to inspect these wires except when there is no traffic, but for the reasons given they should be inspected frequently and the supports kept as clean as possible. As the starting signals for the suburban line are frequently obscured by smoke and steam from an engine standing at the starting signals of an adjoining line, I think the Company should consider the advisability of fitting repeaters for them in the signal-box, so that the signalman may see at a glance, under any conditions, whether the semaphore arm responds to the lever working it.

The attention of the Company should be drawn to the fact that the marshalling of the

passenger train, whereby there were two vehicles at the rear not fitted with the continuous brake, appears to be contrary to the Orders of the Board of Trade, made under the Regulation of Railways Act, 1889.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
E. DRUITT,  
Major, R.E.

## APPENDIX.

### DAMAGE TO ROLLING STOCK.

Great Northern first-class, No. 2,413.—Derailed, 3 pairs of wheels; 1 axle bent; axle box, axle guard, corner pillar, 5 end and 1 side panels, bottom side rail, vacuum pipe, step-iron, 2 step-boards and 1 ascending step broken; 8 step-irons damaged; 2 drawbars and 2 buffers bent.

Great Northern composite, No. 1,850.—Derailed, 4 pairs of wheels; bottom side rail, end bottom rail, corner pillar and 3 step-boards broken; 2 drawbars, 4 buffers, 1 axle guard and 10 step-irons bent.

Great Northern third-class brake, No. 719.—Derailed, 4 pairs of wheels; bottom side rail and moulding damaged; side panel, 3 step-boards, 1 axle box and axle guard broken; 8 step-irons and 2 drawbars bent.

Great Northern third-class, No. 2,217.—2 drawbars and 2 side chains broken; 2 buffers and brakework bent.

Lancashire and Yorkshire open goods waggon, No. 7,212.—Derailed, 1 pair of wheels; 1 headstock and buffer packing broken; 3 buffers bent; 2 end boards broken; 2 end pillars cut and 1 headstock split.

Lancashire and Yorkshire covered goods waggon, No. 26,436.—2 end boards broken; 2 end pillars cut and 1 headstock split.

Great Northern open goods waggon, No. 13,873.—Derailed, 2 pairs of wheels; 4 end boards, 2 end pillars, and 1 door stop broken, and 2 axle guards bent.

Great Northern refrigerator van, No. 38,378.—Derailed, 2 pairs of wheels; 2 end pillars, step-iron, 4 step-boards and side chain broken; 2 end

pillars grazed; 3 hand rails, 4 step-irons and 1 buffer bent.

Great Northern refrigerator van, No. 30,134.—Slightly damaged.

Great Northern engine, No. 821.—Leading buffer beam and front plate broken; all bolts broken; back plate bent; leading buffers bent and springs damaged; engine outside frame and foot plate bent right side; outside frame bulged left back corner; both foot steps bent right side; right side and front automatic pipes broken; flap plate hinge broken; front lamp irons bent; condense shaft bent; condense elbow casting broken and valve spindle bent; condense pipe sprung, under engine; both leading brake hangers bent; leading brake cross-stay and coupling rods bent; right back guard-iron bent and back buffer-beam cap torn off.

#### *Damage to Permanent Way.*

1 check rail broken; 2 12-foot switch tongues bent; 9 switch chairs broken; 10 intermediate chairs broken.

#### *Damage to Signal and Point Connections.*

2 4-foot rods broken; 1 4-foot rod bent; 4 lock rods broken; 3 lock rod castings broken; 5 cranks broken; 4 single roller boxes broken; 1 rocking shaft bent; 1 21-foot lock-bar bent; 3 15-foot lengths point rod broken; 6 15-foot lengths point rod bent; about 600 feet run trunking more or less broken up.

Printed copies of the above Report were sent to the Company on the 25th February, 1902.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.  
November 16th, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with your Order of the 1st November, the result of my enquiry into the causes of the two collisions which occurred on the 24th October, in Bowling Tunnel near Bradford, on the Lancashire and Yorkshire Railway.

In this case, as the 6.10 p.m. down goods train from Low Moor to Leeds, consisting of engine, 29 waggons, and a brake van, was passing through Bowling Tunnel, the rear 16 waggons and brake van broke loose, and remaining in the tunnel were run into from behind by the 9.5 p.m. down goods train from Low Moor to Laisterdyke, consisting of engine, 4 waggons, and brake van, which was following on the same line.

This collision caused two of the waggons of the 6.10 p.m. train to foul the up line, over which the 9 p.m. passenger train from Leeds to Manchester was just about to pass,

with the result that the engine and some of the carriages of this train were damaged. The passenger train consisted of 10-wheeled passenger engine with 6-wheeled tender, and six bogie carriages fitted with the usual automatic vacuum brakes.

The shock to the passenger train was slight, and no one complained of injury.

The guard of the 6.10 p.m. goods train was shaken by the first collision. Both collisions occurred at about 9.20 p.m.

Details of damage to rolling stock and permanent way are given in the Appendix.

### *Description.*

The lines through Bowling Tunnel, which is 1,648 yards in length, run from south to north, the down line being on the west of the up line. The passage of trains through the tunnel is controlled from two signal-boxes, viz., Low Moor, No. 4, situated about 400 yards to the south of that end, and Bowling Junction, 172 yards to the north of the north end, just alongside the down line.

The down starting signal for Low Moor, No. 4, is 220 yards north of that box and 180 yards from the mouth of the tunnel. The down distant signals for Bowling Junction are about 25 yards from the south end of the tunnel, and there is also a disc distant signal in the tunnel for the down line about 420 yards from the north end.

The down home signals for Bowling Junction box are 116 yards beyond the north end of the tunnel and, therefore, 56 yards south of the box, exactly opposite which are the points of the double junction with the Great Northern line to Leeds, the Lancashire and Yorkshire line going on to Bradford.

The down starting signal for Bowling Junction box on the Great Northern line is 451 yards past the junction and box, and Hall Lane signal-box, the next in advance on that line, is 1,033 yards from Bowling Junction box.

The gradient through the tunnel is 1 in 424, falling from south to north.

The point of collision was 640 yards inside the tunnel from the south end.

### *Evidence.*

*Joshua Parkinson*, signalman, states: I am 58 years of age. I have been 43 years in the service—29 years a signalman, and have been 23 years at Bowling Junction. I came on duty at 2 p.m. on the 24th inst. for eight hours. On the previous day I worked from 6 a.m. to 2 p.m. I received the "Is line clear" for the 6.10 p.m. down goods train, Low Moor to Leeds, at 9.8 from Low Moor No. 4, which I acknowledged, and "Train entering section" signal was given at the same time. The train passed at 9.16. As the train was passing me the signalman at Low Moor No. 4 called up on the telephone and asked if he was clear, and I replied "He is passing now," and turned round to the frame. The cutting was full of smoke, and I thought I saw the shadow of the tail light. I gave "Train out of section" at 9.16, and immediately afterwards "Is line clear" for the 9.5 p.m. down goods, Low Moor to Laisterdyke, was offered to me, which I accepted, and received "Train entering section" at the same time. About 9.26, the signalman at Hall Lane box, Great Northern line, the next box in advance, called me up on the telephone and said that only a part of the goods train had arrived. I replied "He must have left the remainder in the tunnel." I at once asked the signalman at Low Moor No. 4 if anyone had come out of the tunnel at that end and he said "No." He afterwards called me up and told me the driver of the 9 p.m. passenger train, Leeds to Manchester, had reported that he had struck something in the tunnel. About 9.35, the fireman of the Laisterdyke goods came to me and said they had collided with something in the tunnel, but could not say what it was, and could not say if the up road was blocked or clear. The guard of the first goods train followed and informed me the Laisterdyke goods train had run into his train; one waggon was smashed up and some bar iron had gone through the end of his van, and he did not know

whether the up line was blocked or not. He said he was badly shaken. I at once telephoned to Low Moor engine shed that there had been a collision in the tunnel, and to send the breakdown gang on the up road. The driver of the second goods train came out next, and he told me the up line was blocked and that a waggon was broken up. I received "Is line clear" for the 9 p.m. passenger train from Leeds to Manchester at 9.13 from Hall Lane signal-box. I acknowledged it at the same time and received "Train entering section" at 9.17, and the train passed me at 9.18. I omitted to give "Obstruction danger" signal in either direction. I was very much upset and forgot to do so.

*Francis Cody*, acting driver, states: I have been in the service 18 years, and have been a booked fireman nearly 12 years, and spare driver for 2 years before that. I was working the 6.10 p.m. goods, Low Moor to Leeds, on the 24th inst. We left Low Moor at about 9.10 p.m. with 29 waggons and brake van. The distant signal for Bowling Junction at the Low Moor end of the tunnel was at danger when I entered the tunnel, and when I saw the other distant in the tunnel it was off. I was running without steam at about 12 miles an hour when I sighted the distant in the tunnel, but on seeing it off I gave the engine steam cautiously, and passed Bowling Junction box at about 20 miles an hour. After passing Bowling Junction I asked my mate to look round and see if the whole of the train was following, and he said he thought it was; but I looked back and could not see the lights of the brake. I looked back several times. There was too much smoke hanging about the tunnel to see if the brake van was following until after I had crossed the junction to the Great Northern line. I was just passing Bowling Junction advance signal when I saw the brake was not following. I

then gradually brought my train to a stand, eventually stopping between Bowling Junction advance signal and Hall Lane home signal, and sent my mate back and he found that the drawbar on the thirteenth waggon from the engine had given way and the rest of the train was not in sight. I then proceeded cautiously to the home signal with the fireman on the rear vehicle, and was put into the siding at Hall Lane by the signalman on duty there. We remained at that place until single line working was brought into force. On arrival at Hall Lane I told the signalman that we had broken loose, but I did not know anything about the rear portion. I did not stop in Bowling Tunnel. When I gave the engine steam in the tunnel I did not feel the slightest pluck. We had just detected that we had broken loose and were bringing the train to a stand when the passenger train from Leeds passed us on the up line. I had no opportunity to caution the driver after finding that we had broken loose, as he passed us just as I discovered my train was in two parts. I did not go on straight to Hall Lane box because I wanted to see if the rear waggon was fit to travel. My engine was a six-wheeled coupled tender engine with vacuum brake on all wheels of engine and tender, and with hand brakes on the six tender wheels.

*F. Tate*, fireman, states: I have been in the Company's service 14 years, nine years as a booked fireman. I was fireman to acting-driver Cody on the 24th inst. I work the same hours as he does. I corroborate his statement. The rear drawbar on the thirteenth waggon was drawn out and missing. The drawbar at the leading end of the waggon was also drawn out about two feet. I came on duty at 8.30 a.m. on the 24th to work till 8.30 p.m. I was booked off from 11.15 to 1.55 p.m. at Leeds, where I live, and where I can go to my home. I came off duty on the 23rd at 11.40 p.m.

*A. Carrack*, spare goods guard, states: I have been in the service six years and a spare guard five years. I signed on duty on October 24th at 1 p.m., after 12 hours and 10 minutes rest, to work till 11 p.m. I worked the 3.15 p.m. goods train Leeds to Low Moor and the 6.10 p.m. Low Moor to Leeds. We left Low Moor at 9.8 p.m. and I was engaged entering up my road note when the train came to a dead stand at 9.12. I concluded that the train had been brought to a stand by signals, and I sat down on my locker. At 9.17 I took out my watch to see the time. I heard a train approaching and got up to see in which direction it was travelling, when I observed two white lights on the down line, and I was immediately knocked over by the trains colliding. I was in the inner portion of the brake van at the time, the door of which was knocked on the top of me. I scrambled from under the *débris* as quickly as I could, and on reaching the door the driver of the 9.5 p.m. goods, Low Moor to Laisterdyke, was getting on to the van step. The distant signal at the Low Moor end of the tunnel was on when we passed it. My train consisted of 29 waggons, 23 loaded and 6 empty, and a brake van. The tunnel was full of smoke at the time we were passing through it, and I should think the train came to a stand about the middle of the tunnel. I thought the engine was standing at the home signal at Bowling Junction. I felt no pluck whatever as we were running through the tunnel; the train ran quite steady. My brake was not on. I should have waited eight or

ten minutes before getting out of my van to see if anything was wrong.

*James Burchall*, driver, states: I have been in the service 20 years, and have been a booked driver about 2½ years. I was working the 9.5 p.m. goods train, Low Moor to Laisterdyke, on the 24th inst. We started from the goods siding at 9.12, and my train consisted of four loaded waggons and brake van. We drew steadily up to the advance signal, which was at danger, and stood there for about two minutes; it was taken off at about 9.16. The distant signal for Bowling Junction at the Low Moor end of the tunnel was at danger when we entered the tunnel. It was very dense in the tunnel, and after travelling about 600 yards we came in contact with a guard's brake van and some waggons in front of it, which were standing in the tunnel on the down line. I did not see the tail lights of the guard's van. I was running from 15 to 20 miles an hour with steam on at the time of the collision, but immediately shut it off, and just as I had done so the express passenger train passed on the up line. I then heard my guard calling our names and asking if we were hurt, but on assuring him that we were not, he told me to send my mate forward to Bowling Junction, as he was going back towards Low Moor to protect that end of the train. After my fireman had gone forward I saw that my engine was in proper order, and then went up to the brake van into which I had run, and called out to the guard, and afterwards climbed into the brake, when I found the guard was in a dazed condition. I asked him if his train had broken loose, and he replied he did not know. Afterwards I received a wrong line order to set back to No. 4 box. I came on duty on 24th at 8.15 p.m. to work till 7 or 8 a.m. next morning, having previously come off duty at 9.10 a.m. My engine was a six-wheels-coupled tender engine, and six-wheeled tender, with vacuum brake on all engine and tender wheels and hand brake on six tender wheels.

*Henry Tomlinson*, driver, states:—I have been in the service 28 years, and have been a booked driver 12 years. I was working the 9 p.m. Leeds to Low Moor passenger train on the 24th inst., and, except for a slight check at Bramley and Stanningley, had a clear road to Bowling Tunnel. I had checked my train, owing to permanent way operations at Bowling New Station, and entered the tunnel at a rate of about 20 miles an hour. After travelling some distance there was a crash, and something came through the weather glass on the fireman's side. I immediately shut off steam and applied the brake, but as I found the engine was on the rails I allowed the train to run forward until we were clear of the tunnel, as I thought this was the safest course to take. I pulled up there, and sent my fireman forward to No. 4 cabin to tell the signalman there was an obstruction in the tunnel and to ask him to block both roads. I got down to examine my engine the moment I got outside the tunnel, and then came forward to Low Moor and finished. On examination of my engine I found a part of a waggon (some ironwork and woodwork) on the front of my engine, and there was also a piece of a buffer casting on the footplate which had apparently come through the window. My engine was a 10-wheeled express passenger engine and six-wheeled tender, with automatic-vacuum brake on six of the engine wheels and six tender wheels, and hand brake on the six tender wheels.



*J. Edwards*, fireman, states: I have been in the service 12 years, and have been a booked fireman four years. I was fireman to driver Tomlinson on the 24th inst., and I work the same number of hours as he does. After entering the tunnel I did not notice anything on the down line as the tunnel was full of smoke, but just as I went to put the left hand injector on there was a crash, and something came through the weather glass on the right side of the engine. After striking the obstruction driver Tomlinson slackened the speed of the train, and allowed it to run slowly out of the tunnel before bringing it to a stand. He then sent me forward to No. 4 box to inform the signalman that there was an obstruction in the tunnel, and to ask him to block both roads.

*John Faulkener*, passenger guard, states: I have been in the service 31 years, and have been a guard 21 years. I was in charge of the 9 p.m. train from Leeds to Manchester on the 24th inst. We left Leeds to time, and our train was checked by signals at Armley and Bramley. My train consisted of six bogies. As we were passing through the tunnel I felt my van give a slight jump, and I heard a noise but was unable to see anything. I looked out of the van window but the tunnel was so full of smoke that I could not see anything. I did not see anyone in the tunnel. The driver came to a stand just outside the tunnel, and I was getting out of my van to go forward to the box, when the driver took the vacuum off and started away again. I called out to the signalman at Low Moor No. 4, when we were passing, that there was an obstruction of some sort in the tunnel. I advised the staff immediately we came to a stand at the station platform. No complaint was made by the passengers. I came on duty on 24th October at 12.45 p.m. to work till 10.30 p.m., having previously come off duty the 23rd at 10.30 p.m. My train was fitted throughout with the vacuum brake, which was in good working order at the time, having 20 inches of vacuum with blocks on all wheels of the train.

*Thomas Cook*, carriage inspector, Bradford, states: I have been in the service 20 years, seven as inspector. It was about 10.25 p.m. when I first heard of the collision, and I proceeded to the spot as quickly as possible. I examined the whole of the vehicles in the tunnel and found Low Moor Iron Company's waggon No. 161, which was the leading waggon nearest to Bradford, with a portion of the drawbar of another waggon attached to it. The drawbar attached to this waggon was in good condition with the exception that the cotter was missing. After examining the other vehicles, and taking particulars of the damages I went to Hall Lane with part of the rear portion of the 6.10 p.m. goods, Low Moor to Leeds. On arrival at Hall Lane, I found the rear vehicle of the front portion of the train which was Liversedge Coal Company's Waggon No. 7, was without the trailing drawbar and couplings, and the front portion was pulled out on account of it being a through drawbar. I made a strict search over the course travelled by the train up to the point of breakloose, for the missing cotter, but I have not been able to find it. The waggon was loaded at the Liversedge colliery about four miles from Low Moor. Private

owners' waggons are minutely examined at exchange stations when passing from one Company's line to another, and in yards when opportunity offers, but the owners are responsible for turning them out in good condition.

*James Towns*, signalman, states: I am 59 years of age. I have been in the service 28½ years, and have been a signalman 28 years, at No. 4 Low Moor about 24 years. I came on duty on October 24th at 2 p.m. for eight hours. I worked the same hours the previous day. I received the "Is line clear" for the 6.10 p.m. goods Low Moor to Leeds from No. 3 Low Moor, at 9.6. I accepted it, and received "Train entering section" at the same time. The train arrived at my box at 9.6. On offering the train forward to Bowling Junction at 9.9, after I had received "Train out of section" for the passenger train which passed me at 9.7, it was accepted, and I gave "Train entering section" at 9.9. I received "Train out of section" for it at 9.16, when I offered the 9.5 p.m. goods train Low Moor to Laisterdyke, which was accepted, and the train left my box at 9.16. I received "Is line clear" signal for the 9.5 p.m. up passenger train from Bradford to Low Moor at 9.10. I accepted it at the same time and received "Train entering section" signal at 9.11. The train passed me at 9.14, and I gave "Train out of section" for it at the same time. I received the "Is line clear" signal for the 9 p.m. up passenger train from Leeds to Manchester at 9.14 which I accepted, and "Train entering section" was given for it at 9.18. At about 9.22 p.m. the fireman of the Leeds train came to my box, and said there was something wrong in the tunnel, and their engine had been damaged on the six-foot side, but he did not know what it was. At this time the driver arrived with the train at my box, and he repeated what his fireman had told me. I telephoned at once to No. 2 west box, to inform the station staff that something was wrong in the tunnel, and that the engine of the passenger train then approaching the station had been damaged by coming into contact with some obstruction, and to tell the station staff to send someone down into the tunnel to see what was wrong, as I should not clear the up road till I knew what was wrong. About 10 minutes after the Leeds passenger train had passed, the guard of the Laisterdyke goods train came back to my box and said there was something wrong in the tunnel, and his train was standing in the tunnel. I asked him if they had run into anything but he could not tell me. I then instructed him to go back to ascertain what had occurred, and if the line was clear to let me know immediately they arrived at Bowling Junction. I omitted to give the "Obstruction danger" signal in either direction immediately the fireman came to my box, as it entirely escaped my memory to do so. I did not receive the "Obstruction" signal from Bowling Junction. At 9.24, when the Leeds train was standing at my box, the signalman at Bowling Junction called me up on the telephone, and asked me if the Leeds express had arrived. I replied "He is now standing at my box, and the driver says he has struck something in the tunnel." I then asked him if the Laisterdyke goods had arrived and he said "No." I had not any more conversation with him before I left duty at 10 p.m., and I was not aware that a collision had occurred until next day.

### Conclusion.

It will be seen from the above evidence that the causes of these two collisions are quite clear.

Signalman Joshua Parkinson, at Bowling Junction box, accepted the 6.10 p.m. down goods train from the box in rear, Low Moor No. 4, at 9.8 p.m. After travelling through the tunnel between the two boxes the engine and first 13 waggons passed Bowling Junction box at 9.16 p.m., but Parkinson failed to observe that there was no tail lamp on the last vehicle, and so gave the "Train out of section" signal for the train to Low Moor No. 4, the box in rear, while the remaining 16 waggons and brake van were still in the tunnel, these having broken loose from the front portion, owing to a defective drawbar on the thirteenth waggon. Parkinson was then offered the second train, viz., the 9.5 p.m. down goods, and at once accepted it, with the result that it ran into the rear of the previous train with considerable force and caused two waggons of it to foul the other line of rails in the tunnel. Just at the time (9.20 p.m.) the 9 p.m. passenger train from Leeds to Manchester was passing on the up line, having passed Bowling Junction box at 9.18 p.m., and accordingly it ran into the waggons that were foul of the up line. Fortunately, the engine and carriages of the passenger train kept the rails, and so no harm resulted to it beyond some damage to the engine and carriages.

The blame for these two mishaps rests entirely with Signalman Parkinson, who failed to carry out the important duty of ascertaining if the rear vehicle of the first goods train had a tail lamp attached to it when it passed his box.

He states that the cutting in which his box stands was full of smoke, and that he thought he saw the shadow of the tail light, but as his box is not high up and actually alongside the line on which the train in question was travelling, I cannot regard this as a satisfactory excuse for his error. He also omitted to send the "Obstruction danger signal" in either direction when he knew of the accident. He had been on duty 7 hours and 20 minutes at the time, having previously been off duty for 24 hours.

Driver Cody, the engine-driver of the first goods train, states that when he entered the south end of the tunnel the down distant signal there was against him, but that when he sighted the disc down distant signal in the tunnel it was off, so he gave his engine steam cautiously. He states he felt no pluck when he gave his engine steam, and that there was nothing to lead him to suppose that he had a divided train. There was too much smoke hanging about the mouth of the tunnel for him to see if his brake van was following until he had crossed the junction on to the Great Northern line, and though he looked back several times he states he had got to the advance signal, 451 yards past the junction, before he saw that the brake van was not following. He then brought his train to a stand, and sent his fireman back to see what had gone wrong, and then proceeded to Hall Lane box. He states he did not go straight to Hall Lane box without stopping, as he wanted to ascertain if the rear vehicle was fit to travel. If he had gone straight on he would not have been in time to stop the passenger train as it passed him before he came to a stop just after he discovered his train was divided.

It might have been better judgment on his part to have gone straight on to Hall Lane to give information at once to the signalman, but there was no danger in his stopping as, just past the junction, the line is on a rising gradient of 1 in 150, so the part broken loose could not have run forward and collided with the front part. He evidently acted as he thought best, and is not to blame in any way, I consider.

Driver Burchell, of the second goods train, had no chance of avoiding the collision as the tunnel was so smoky that he could not see the tail light of the brake van of the first train. He is not to blame in any way.

It is impossible to say what actually caused the disconnection of the drawbar of the thirteenth waggon, which was one belonging to private owners, viz., The Liversedge Coal Company. This drawbar (1½ inches in diameter) was in two lengths, one 3 feet 6 inches long, the other 12 feet 9 inches long, and these were united by means of a sleeve and two cotters. The cotters were secured by iron rings. By some means the cotter which fastened the short length of drawbar, which was at the leading end of the waggon, must have fallen out, with the result that this short length of drawbar was pulled right out of the waggon, thus causing the break-loose. Two cotters were subsequently picked up on the line over which the train had travelled, one with a broken head and the other with the securing ring missing, and, from their appearance, it is probable that the one with the missing ring belonged to the waggon in question. From the position of these cotters, right underneath the body of the waggon, a deficient securing ring would not be noticed unless a minute examination of the waggon was made.

I have, &c.,

The Assistant Secretary,  
Railway Department, Board of Trade.

E. DRUITT,  
Major, R.E.



## APPENDIX.

## PARTICULARS OF DAMAGE TO ENGINES.

Engine No. 1132 of Second Goods Train.—Brick arch knocked down and two tender buffers damaged.

Engine No. 718 of Passenger Train.—Smoke box bulged; hand rails bent; right side footstep broken off; cab shifted and spectacles broken.

## PARTICULARS OF DAMAGE TO COACHES AND WAGGONS.

*Passenger Train.*

Lancashire and Yorkshire Bogie Third Van, No. 265.—Waist panels and footboards damaged.

Lancashire and Yorkshire Bogie Composite, No. 482.—One short footboard broken.

Lancashire and Yorkshire Bogie Third, No. 474.—One waist panel and projection broken.

*Goods Train.*

Lancashire and Yorkshire Waggon, No. 2371.—Two axle guards, nine axle-guard bolts, three axle boxes, one headstock, four end planks, two end posts, two capping irons, and one corner plate broken; one corner plate, two buffer rods, and two buffer heads bent; one headstock and one end plank grazed, and wheel flanges cut.

Liversedge Coal Company's Waggon, No. 7.—One drawbar cotter and face plate damaged.

Lancashire and Yorkshire Goods Brake Van, No. 6738.—Four end boards, one headstock, one

end light, one partition light, and one partition board broken; one partition door displaced; one hand rail and one corner plate bent; and one side footboard broken.

Brooks and Pickup Waggon, No. 406.—Two axle-guard bolts broken.

Great Central Railway Waggon, No. 8061.—One axle box, one buffer liner, and one solebar broken; one axle guard, two solebars, two buffer hoops, one brake guard, and one end post damaged.

Low Moor Iron Company's Waggon, No. 60.—One bearing-spring shoe missing.

Low Moor Iron Company's Waggon, No. 35.—One bearing-spring shoe missing.

J. Nicholson & Son's Waggon, No. 1.—One buffer head, one end post, one end block, and two buffer castings broken; one buffer rod badly bent; one diagonal and one corner plate damaged.

Great Central Railway Waggon, No. 8434.—Broken up.

## DAMAGE TO PERMANENT WAY.

Eleven chairs broken.

Printed copies of the above Report were sent to the Company on the 17th December.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department (Board of Trade),  
8, Richmond Terrace, Whitehall, London, S.W.,  
November 22nd, 1901.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with your Order of the 11th November, the result of my inquiry into the causes of the collision, which occurred on the 4th November, between a passenger train and a pilot engine at Todmorden, on the Lancashire and Yorkshire Railway.

In this case the 3.55 p.m. passenger train from Manchester to York was turned down the branch line to Burnley at Todmorden No. 3 signal-box, instead of proceeding along the down main line, and ran into a pilot engine which was standing about 130 yards along the former line.

The passenger train consisted of a four-wheels-coupled express engine with leading bogie and a six-wheeled tender, with automatic vacuum brake on the four coupled wheels of engine and six tender wheels, and hand brake on six tender wheels, and of three bogie carriages, viz. :—

One Bogie Carriage Brake,  
One Bogie Composite,  
One Bogie Carriage Brake,

fitted with the automatic vacuum brake on all wheels, which is stated to have been in very good working order.

The collision was a very severe one, both engines being very badly damaged, the leading bogie carriage turned on its right side across the up road, the middle one turned over to the left and was held up from falling down the embankment by a telegraph post, and the rear one was derailed.

The pilot engine was not derailed, but was driven along the down branch line for a distance of over six hundred yards, and the main frame was so bulged out that it was foul of the up line.

The driver and fireman of the pilot engine were both very severely injured; the driver and fireman of the passenger engine were also both injured, and four passengers complained of slight injuries.

The collision occurred at 5 p.m. during a dense fog.

Details of damage to rolling stock and permanent way are given in the Appendix.

### *Description.*

The main lines through Todmorden run approximately east and west, the down line being to the north of the up line.

The signalling is controlled by means of four boxes, known as Numbers 1, 2, 3, and 4; No. 1 being the most westerly and therefore the first one passed by down trains.

The sections between the signal-boxes are very short, viz., 370 yards between Nos. 1 and 2, 312 yards between Nos. 2 and 3, and 470 yards between Nos. 3 and 4.

Todmorden Station is between Nos. 1 and 2 boxes, No. 2 being at the east end of the platform, and the down home signal for it is also the down platform starting signal. Todmorden No. 3 down distant is under No. 2 down home.

Nearly opposite No. 3 box are the points of the double junction between the Burnley branch lines and the main lines, but the home signals for No. 3 are 110 yards behind the points, and the distant signals for No. 4 and for Stansfield Hall box (the next box on the Burnley branch lines, 400 yards away) are underneath the home signals.

The Burnley branch lines run off sharply to the north and north-west on a curve of 10 chains radius, provided with a check rail.

At 110 yards along the down branch line are the trailing points of a connection from the coal sidings behind No. 3 box.

A little further on is a cross-over road between the up and down branch lines; the trailing points in the down branch line being about 150 yards from No. 3 box.

Owing to the sections being so short signalmen at Nos. 1, 2, and 3 boxes are instructed not to lower their distant signals unless the distant signal for the box in advance is lowered.

The down main line is on a falling gradient of 1 in 177 between Nos. 2 and 3 boxes.

The Burnley branch down line is on a falling gradient of 1 in 177 for the first 50 yards, then falls 1 in 585 for 150 yards, and then is mostly on a rising gradient in parts pretty steep for 500 yards.

### *Evidence.*

*James Hodgson*, signalman, Todmorden, No. 2 box, states: I have been in the service since 1889, and a signalman since October, 1892, and have been in Todmorden No. 2 box for 2 years and 3 months. On November 4th I came on duty at 2 p.m. to work until 10 p.m., having been off duty since 10 p.m. on the 2nd inst. It was very foggy on the night in question. The Liverpool portion of the 3.55 p.m. from Manchester to York was circuited to me at 4.38 from Summit West box, and I forwarded the circuit call to the next circuit up to Hebden Bridge with the words, "Liverpool portion of York express leaving Rochdale 4.38." At 4.48 I received circuit call for the Manchester portion of York express leaving Rochdale, and I forwarded this circuit on at 4.50 p.m. At 5 p.m. I received circuit call for the 4.23 p.m. Rochdale to Burnley, but I did not forward this circuit call, i.e., when it leaves Rochdale, as it is not the practice with these trains. The signalling of the Liverpool

and Manchester portions of the York train is as follows:—

—	Received "Is line clear" from No. 1	Acknowledged.	Train entering section.	Train passed.	"Is line clear" acknowledged by box in advance.	"Train out of section" given.	"Train out of section" received.
Liverpool portion.	4.45	4.45	4.49	4.50	4.45	4.50	4.59
Manchester portion.	4.54	4.54	4.59	4.59	4.54	5.16	5.16

When I was acknowledging the "Train entering section" signal from No. 1 box for the Manchester portion by turning my needle to "Train on line" the signalman at No. 3 box gave me one stroke on the block bell. I gave him "Train entering section" signal, then I gave him one on

the bell as an acknowledgment to his call. I then received the circuit call from Summit West for the 4.23 p.m. Rochdale to Burnley. This would be about 4.59, and at that moment the Manchester portion of the York express was just under my box. I took the receiver off the Hebden Bridge circuit at the same time as I took the receiver off the Littleborough circuit. I could not hear what Sunderland said to me, as I was attending the circuit from Littleborough, to which I replied "Aye." Directly I had finished with the Littleborough circuit I restored the receiver to its proper position, and I listened on the Hebden Bridge circuit, but could hear no one speaking, so I circuited the Manchester portion of the York train as passing my box to Hebden Bridge at 4.59 p.m. I did not know anything about the Manchester portion of express being turned on to the Burnley branch until Sunderland told me about 5.2 p.m. He said, "This express has run on the branch." I replied, "What is it doing on the branch?" I had all my signals off for the Manchester portion of the train at 4.56, and all the slot indicators in my cabin for the main line were taken off at the same time by No. 3 box. I could see No. 3 distant signals underneath my home signal, and at that time the main line distant signal was off. I should think the express passed my box at the rate of 30 miles per hour. There was no fogman at my home signal.

*William Sunderland*, Todmorden, No. 3 box, states: I am 53 years of age, and have been in the Company's service since 1873. I have been a signalman 28 years, the last 18 years at Todmorden No. 3 box, and 10 years previously at Hebden Bridge. On November 4th I came on duty at 2 p.m. to work until 10 p.m., having gone off duty the night before at 10 p.m. I received "Is line clear" signal for an express at 4.45, acknowledged it at 4.45, received "Train entering section" at 4.50. It passed me at 4.50, and was accepted by box in advance, No. 4, at 4.45. "Train out of section being given by me at 4.51, and I received "Train out of section" at 4.51 from No. 4. I received "Is line clear" signal for another express train at 4.56, acknowledged it at 4.56, received "Train entering section" at 4.59, and it passed me practically at the same time. The first of these trains was the Liverpool to York portion, which was running independently of the Manchester portion, and the second was the 3.55 p.m. Manchester to York portion. I did not know at the time what these trains were, as I had not attended to the circuit calls. Sometimes, if one is busy, one cannot get to the telephone in time. I am not prepared to say that the circuit calls were not sent. I had all my main line signals off for both express trains, and the trains were accepted by No. 4 box, the box in advance. At 4.41 I put a pilot engine in the coal sidings at the back of my box. I had had information that a goods train, which was coming from Yorkshire direction and going Burnley way, required a bank engine, and I asked the pilot driver, who was in the coal sidings, if he required water before he banked the train. He replied "Yes," and I told him I would turn him across on to the up main line to get water as soon as the express had passed. I allowed him out of the siding to stand above the cross-over road on the down branch to Burnley at 4.58. It was very foggy, and it was well out of sight of my box, being about 150 yards away. While I was talking to the pilot driver the signalman at Stansfield Hall called me up on the telephone and asked me where the Burnley train was.

I replied, "I do not know, but I have a train warned down; it might be it, but I will ask." I called the man up at No. 2 box and said, "Is this the branch train, Jim," and he replied, "Aye." I immediately turned round and put my main line signals on and reversed the junction. I was just turning to the telephone to ask him to cancel the train I had accepted in order to get the pilot across to the up line when the express dashed by. In order to get the pilot across on to the up line I was bound to reverse my junction, and before I could let the branch train go I should have had to remove the engine off the down line, and I thought that the train which I had accepted as main line train was the branch train, and would be standing in the station whilst this was being done, and I was going to ask No. 2 box to cancel the train he had signalled to me in order to get the pilot across. The train was running fast when it passed my box. No fog signals were exploded as the train approached my box. I do not think the fogman would have had time to put them on in the interval between reversing the signals and the train passing. The 4.23 Rochdale to Burnley train is the only through passenger train during the day; all the other Burnley trains run into Todmorden and back again. Both these trains are signalled to me as express trains, and I did not know the York train was running in two parts, not having attended to the circuit calls. When I took off my main line signals for the second express I thought it was the 4.25 p.m. from Manchester to Leeds express, due to stop at Todmorden at 4.55 p.m.

*James Law*, platelayer, states: I was on duty on the night of the accident, fogging Todmorden No. 3 down home signal. I remember the first express passing on the down main line just before the accident, and the signals were put to danger. I went back, and put a fog signal on the line. Some little time after this both the signals were lowered again for the main line, and I went and took my fog signal off. I came back where I could see my signals plainly, and on the train approaching I gave the driver a green light. The signals were off when the train, which came into collision with the engine, was passing through the station, and when I gave the green light my back was to the signal. I was about 16 or 17 yards from the post. Directly after the train had passed I looked at the signals and they were on again. At this time the accident had not occurred. There was a very short interval of time between the signals being put to danger and the collision. I heard the crash about two seconds after the train had passed me. Immediately after the accident I put three fog signals on the rails, turned my lamp to danger, and put it on the rail of the viaduct, and went to the signal-box to see what was the matter. I then went back to my post. The train was running very fast passing me.

*Ernest Moorhouse*, signalman, states: On 4th November I was signalman at Stansfield Hall box which is an eight hours' box, when I received information that a goods train from Yorkshire direction for Burnley was approaching me, and required a bank engine. I asked the signalman at No. 3 box if he knew where the Burnley passenger train was, as it was due. He replied that he did not, but he had a train warned to him, and he would enquire if it was the Burnley train. Immediately after this I was sitting near the cabin window getting my tea,

when I saw a light engine rush by. This was the pilot engine with which the express came into collision, and which was knocked beyond my cabin at a very quick rate.

*William Stephenson*, guard, states: I have been in the service 26 years, and a guard 20 years. On November 4th I came on duty at 6.40 a.m. to work until 6.6 p.m. I worked the same hours the day before. I was in charge of the 3.55 p.m. from Manchester to York, which left Victoria at 4.23, and Rochdale at 4.46 p.m. We had a clear road from Rochdale to Todmorden. It was clearish from Rochdale to outside Todmorden, and we passed Todmorden at about 4.58. Here I felt the brakes applied in full force. We had just passed through the station, and I think we were on the viaduct. I should say we were running at 40 or 50 miles an hour through the station. The first I knew of the accident was when the train began to jump, and I was knocked from one end of the van to the other. All lights were out, and when I picked myself up I relit my hand lamp. I sent late guard Booth (now station master's clerk of Halifax) back to No. 3 box to block all roads, and goods inspector Simms of Wakefield, who was also in train, went to Stansfield Hall to block all roads there. They were both passengers of this train. My train consisted of three bogie vehicles; bogie carriage brake, bogie compo, bogie carriage brake. Rear third van was off the road, and compo next to it partly on its side, leaning to the left against a telegraph post; the leading third van was on its side across

the up road. We had about 40 passengers in the train. The pilot engine which we struck was driven beyond Stansfield Hall platform. Our engine was wrecked. All the passengers got out and only one complained to me, and he said some of his teeth had been knocked out. Most of the passengers were removed to Stansfield Hall Station. My train was fitted throughout with the vacuum brake which was in very good working order. The driver told me after the accident that all the distances were off for him.

*Copy of written statement of driver W. Clough, working 3.55 p.m. Manchester to York, and who was injured in accident, and unable to attend enquiry.*

"Approaching Todmorden Station about 4.58 p.m., all the signals were off as far as Todmorden No. 3, and these signals we were unable to see owing to fog, but we got an all right signal by fogman. Soon after passing this point I found we were turned on to the branch. I shut off steam at once and applied the brake with its full force. Owing to the sharp curve we were both thrown from our feet, and knew nothing further until the engine came to a stand. We were very much stunned. As soon as I got up I gave information to the pointsman at Whiteplatt's Junction and blocked both roads at once, whilst my fireman stopped on the engine. When I got back my fireman had gone to have the cuts on his head attended to. I was assisted to Dr. Elliotts to have cuts, which I had sustained, attended to, afterwards travelling home by passenger train leaving Todmorden at 9.30 p.m."

### Conclusion.

The cause of this collision, which might have been attended with far more serious results, is quite clear, there being no discrepancy in the evidence as regards the events which preceded it.

On the day in question the Liverpool and Manchester express to York, which usually runs as one train from Rochdale, was run in two portions, owing to the Manchester portion being delayed through the dense fog which was prevailing at the time.

On the Lancashire and Yorkshire Railway, information as regards the running of important trains is conveyed to the various signal-boxes concerned by telephone-circuit calls, *i.e.*, a certain number of successive signal-boxes are grouped in a circuit, and the signalman at the first box in a circuit, on the departure of a train, calls up all the boxes in that circuit on the telephone simultaneously, and after a short pause gives the information as to the time the train in question leaves his station, which is heard simultaneously by all the signalmen in the circuit. The man in the end box of that circuit then, if so instructed, forwards the message to the next circuit, and also sends a further circuit message when the train in question passes his box. Thus, Todmorden No. 2 box, one of those concerned in the collision in question, is the last box in the circuit Summit West box to Todmorden No. 2, and the first box in the circuit Todmorden No. 2 to Hebden Bridge, as regards down main line trains.

The Company attach great importance to these circuit calls, as they enable signalmen to know beforehand how trains are running.

Signalman Hodgson in Todmorden No. 2 box, the end box in that circuit, received the circuit call for the first portion of the York train at 4.38, and he forwarded the circuit call to the next circuit, in which Todmorden No. 3 is the next box, at once, *viz.*, 4.38 p.m., with the words "Liverpool portion of York express leaving Rochdale, 4.38." At 4.48 p.m. he received the circuit call for the Manchester portion, which he forwarded at 4.50 p.m.

Signalman Sunderland, at Todmorden No. 3 box, says he had not attended to these circuit calls as he was busy shunting, and so was unable to leave his work and go to the telephone to receive the messages, and that this pretty frequently happens. Accordingly he was unaware that the York train was running in two portions.

The signalling of the two portions of the York train was as follows:—

Sunderland at No. 3 box was offered the Liverpool portion at 4.45 p.m., which he

acknowledged at once; it passed his box at 4.50 p.m., and he received the "Train out of section" signal for it from No. 4 box at 4.51 p.m., and he gave the "Train out of section" signal for it to the box in rear, No. 2, at the same time.

Sunderland received the "Is line clear" signal for another express train, *i.e.*, four strokes on the bell, at 4.56 p.m., which he acknowledged at once, and which he offered and which was accepted by the box in advance on the main line, Todmorden No. 4, and he accordingly lowered all his main line signals for it, thinking that it was the 4.25 p.m., Manchester to Leeds passenger express train, due to stop at Todmorden Station at 4.55 p.m.

At 4.58 Sunderland let a pilot engine out of the coal sidings just behind his box, on to the down branch line to Burnley, the engine being required to bank a goods train which was coming from Hebden Bridge to Burnley, and as it required water Sunderland arranged for it to cross to the up line to go to the water cump as soon as the express, which he had accepted, had passed. Accordingly, the pilot engine went about 130 yards down the Burnley line to get to the cross-over road leading to the up line.

As Sunderland was talking to the driver of the pilot engine he was called on the telephone by the signalman at Stansfield Hall box, *i.e.*, the next box in advance on the Burnley line, who asked him where the Burnley train, due to leave Todmorden at 4.48 p.m., was. Sunderland replied "I do not know, but I have a train warned down—it might be it, but I will ask."

Sunderland then called up Hodgson at No. 2 box, and says he asked Hodgson "Is this the branch train," and that Hodgson replied "Aye." Hodgson's account of what occurred is that at 4.59 p.m., just as he was acknowledging the "Train entering section" signal for the Manchester portion of the express from No. 1 box, Sunderland called him by giving one stroke on the block bell. Hodgson says he first gave Sunderland the "Train entering section" signal for the express, and then gave him one stroke on the bell to acknowledge his call.

At the same time Hodgson says he received the circuit call from Summit West box for the 4.23 p.m., Rochdale to Burnley, train, and so he took the receivers off both telephones, which are alongside each other in the signal cabin, at the same time. He states he did not hear what Sunderland said to him as he was attending to the circuit message, and to which he replied "Aye," and that then having restored the receiver to its proper position in the telephone to Summit West, he listened to the Hebden Bridge circuit, but could hear no one speaking. Unfortunately, Sunderland heard the word "Aye" intended for the signalman at Summit West, and, thinking the approaching train was the one for Burnley, instantly put his main line signals to danger and reversed the junction points.

He states he reversed his junction points in order to get the pilot engine across to the up line, as he was bound to get it off the down line before he could let the Burnley train go, and he then thought that the train he had accepted was the Burnley branch train and not a main line train, and that the branch train would be standing in the station while this was being done. Having reversed his junction points he was just turning to the telephone to ask Hodgson at No. 2 box to cancel the train he had accepted, when the express went by.

Accordingly, the York train was turned on to the branch line and violently collided with the pilot engine. The blow was so great that the pilot engine was driven by it for a distance of 640 yards on an up gradient, and in the words of the signalman at the Stansfield Hall box (250 yards ahead), it rushed by his box.

It was an unfortunate coincidence that the 4.23 p.m., Rochdale to Burnley, train is the only through train in the day to Burnley, all others starting from the bay line at Todmorden. Accordingly, the 4.23 p.m., which does not stop between Todmorden and Burnley, is signalled on the block bell as an express, *i.e.*, four consecutive beats, whereas all others in the day for the branch are signalled as ordinary passenger trains by the "three, pause, one" signal. Thus, Sunderland, who had not attended to the circuit call, could not tell from the bell signals whether the express offered him was for the main line or for the Burnley branch.

The driver and fireman of the York train were too ill to attend my inquiry, but from the statement of the driver given to the Company, and the evidence of platelayer James Law, who was acting as fogman at No. 3 box home signals, there is no doubt but that the main line signals were not put to danger by Sunderland until just as the train was passing them; and Sunderland's own statement bears this out.

The driver could not see the signals themselves, but saw the all-right signal from the fogman.

The driver (Clough), finding he was turned on to the branch, shut off steam and applied his brakes, and if it had not been for the pilot engine would soon have stopped his train without mishap, as it kept the rails in spite of the sharp curve and the high speed, which in combination threw both driver and fireman off their feet.

Thus, neither the driver nor fireman of the passenger train are to blame in any way. Also, neither the driver nor fireman of the pilot engine are to blame in any way as they were standing on the down branch line by orders of the signalman.

Signalman Hodgson, in No. 2 box, gave his evidence in a very clear manner, and cannot be blamed, I consider, for the unfortunate accident by which Sunderland took his answer to Summit West for the answer to his own question; but to prevent misunderstandings the telephones should be placed further apart, and instructions given that the receivers of both telephones must never be off their hooks at the same time.

Signalman Sunderland is, I consider, alone to blame in the matter, as, if in doubt of what the second express train was by not having attended to the circuit calls, he should have called up No. 2 box before accepting it in order to ascertain.

His getting the answer intended for another man on the telephone was a pure accident, but after accepting the train he should not have reversed his junction points until he had got the train cancelled by the box in rear, or had brought it to a stand at his own home signals.

But for the very dense fog prevailing at Todmorden at the time, the accident would not have happened, as Sunderland stated that, when he misses the circuit calls, he can tell whether the trains are through expresses or not by seeing whether they stop at Todmorden Station.

Sunderland is a signalman of 28 years' experience, and had been 18 years at No. 3 cabin. He had been on duty three hours at the time of the collision, having previously been off duty for 16 hours.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
E. DRUITT,  
Major, R.F.

#### APPENDIX.

##### *Damage to Coaches in York Train.*

No. 260 bogie third van.—2 bogie frames badly buckled; 4 axleboxes, 1 bearing spring, 2 headstocks, 4 footboards, 1 crossbearer, 1 diagonal, 2 brakeblocks, 3 buffer rods, all side lights, 2 buffer castings and 1 drawbar broken; end staved in; body shaken and panels broken; roof damaged; 5 roof boards broken; brakework and gasfittings displaced and damaged; heating pipe tap broken; vacuum train and coupling pipes broken; 2 lamp irons broken; 6 leg irons broken; 2 projection seats displaced and damaged; both bogies knocked from under; centre casting broken.

No. 640 bogie carriage.—2 headstocks, 2 long footboards, 5 end panels, 6 top side panels, 4 bottom side panels, 3 door panels, 2 waist panels, 4 door pillars, 1 quarter light, 4 axleboxes, 1 buffer and vacuum train pipe, all broken; 3 buffer rods bent; roof damaged; inside fittings displaced; door completely broken; body frame rails broken; body moved and badly shaken; vacuum coupling and heating coupling pipes broken; brakework and gasfittings damaged.

No. 503 bogie third van.—1 headstock badly damaged; 1 headstock cap broken; 1 long footboard badly split; 2 bottom side panels broken;

1 bottom body rail damaged; 1 end step iron broken; 2 waist panels damaged; roof damaged—one board broken; one end staved in; seats displaced and trimmings damaged; floor boards displaced; vacuum pipe and 4 buffer rods bent.

##### *Damage to Engines.*

Engine No. 987, working the Manchester York train.—Practically everything damaged except boiler and firebox, the main frames being badly bent, the cylinders forced back into the motion, and all axles badly bent. The tender was also badly damaged in every part.

Engine No. 809 (the light engine).—Both main frames bent; coal bunker, cab, brakework, life guards, sandboxes, injectors and buffer plate, require renewing. Reversing gear, smokebox, splashers, ashpan and valve spindle bracket badly damaged.

##### *Particulars of Damage to Permanent Way.*

208 yards single rail, 86 lbs. section, broken or bent; 10 No. B 82 8-in. chairs broken; 9 No. B 82 6-in. chairs broken; 33 crossing chairs broken; 125 sleepers broken or damaged; 528 iron spikes broken or bent; 528 treenails broken; 389 keys (wood) damaged.

Printed copies of the above Report were sent to the Company on the 13th December.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
November 21st, 1901.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with your Order of the 11th November, the result of my inquiry into the causes of the collision which occurred on the 5th November between a passenger train and a goods train at Todmorden on the Lancashire and Yorkshire Railway.

In this case, in consequence of the Burnley branch lines being blocked, owing to an accident, the 8.13 a.m. train from Preston to Todmorden was being brought into the station from No. 4 signal-box on the up main line, and was by accident turned into the up loop line, where it came into collision with the 11.45 p.m. goods train from Rose Grove to Leeds.

The passenger train consisted of a pilot engine, which was a six-wheeled coupled goods engine and six-wheeled tender, fitted with the automatic vacuum brake on all wheels and hand brake on six tender wheels, of the following vehicles in order named, viz. :—a bogie carriage van, a six-wheeled third, a bogie composite, and a bogie carriage van, and of the train engine proper, which was a four-coupled bogie passenger engine and six-wheeled tender, fitted with the usual automatic vacuum brakes and hand brake.

The carriages were fitted throughout with the automatic vacuum brake, with the exception of the centre pair of wheels of the six-wheeled third carriage.

The goods train consisted of engine and 46 loaded waggons and a brake van.

Three passengers complained of injury.

All three engines were damaged, and the bogie carriage at the then rear of the passenger train next the train engine was derailed.

The collision occurred during a thick fog at about 10 a.m.

Details of damage to rolling stock and permanent way are given in the Appendix.

### *Description.*

The main lines from Manchester to Hebden Bridge and Yorkshire run through Todmorden from west to east, the down line being to the north of the up line.

Opposite Todmorden No. 4 signal-box are the points of the double junction of the main lines from Burnley and Preston with the Yorkshire main lines, the former run in a north-westerly direction, the up line being to the north of the down line.

Thirty-five yards west of the signal-box are the facing points leading from the up main to the up loop line.

Eighty-three yards east of the junction trailing points in the down main line there are the trailing points of a cross-over road between the up and down main lines to Yorkshire.

The up main line home signals are a few yards beyond the trailing points of the cross-over road, and so are 86 yards east of the facing points to the up loop and of the signal-box.

The up main line home signal from Preston is 70 yards back from the fouling point of the junction of the two main lines.

There are no set-back signals for the cross-over road, and no outlet signal at the east end of the up loop for trains which, being shunted into the up loop, require to proceed in the down direction.

The gradient of the Yorkshire main lines is a falling one of 1 in 239 from west to east.

### *Evidence.*

Thomas S. Berry, signalman, states: I have been in the service 20 years, and a signalman about 11½ years. I have been in Todmorden No. 4 box for about five weeks. Before this I

was stationed at Rochdale No. 5 box for the summer, and formerly I was at Todmorden No. 3. On November 5th I came on duty at 6 a.m. to work until 2 p.m. I had gone off duty



the day previous at 2 p.m., but I had been called out again for something less than an hour at 7.40 p.m. to take charge of Todmorden No. 3 box, on account of the accident that had occurred there on the night of the 4th. The 8.13 a.m. train, Preston to Todmorden, owing to the accident which had occurred at No. 3 box, could not be turned over the branch, therefore all trains from East Lancashire district for Todmorden Station had to be sent to Todmorden No. 4 box, and there reversed and drawn into the station. I received "Is line clear" signal for the 8.13 a.m. from Preston to Todmorden at 9.28, accepted it at 9.33, received "Train entering section" same time, and it arrived at 9.36. I brought the train to a stand at my home signal, and I telephoned to the station to get a man to conduct the train into the station, as has been usual when the trains have to be taken into the station over the East Fork. I drew the train down below the crossing, and as it was passing my box I told the driver I would put an engine on to draw him into the station. I had a pilot engine standing in the up loop, and as soon as I had ascertained that a man had come from the station to conduct the train into it I turned the pilot from the up loop on to down main line. As the pilot was passing my box I warned him that he was going to be attached to a loaded passenger train standing on the main line, and that he was to be careful. It was very foggy at the time. The foreman porter asked me if I had got a road for the train into the station, and I said "No, not yet, but I will get one," and I got it accepted on the main line by No. 3 box at 9.56 a.m. I looked along my frame to see if the road was properly set, and I thought it was. I then told the foreman "Right away into the station," and as it was just passing my box I saw that I had forgotten to reverse my up loop points and that the road was set for the up loop. I had a Rose Grove to Leeds goods train shunted across into the up loop, consisting of 61 waggons and engine, according to my information from Portsmouth, and it was standing near to the entrance of the up loop. I then realized that the passenger train would run into it. I made every endeavour to stop it, and I got the attention of the driver of the train engine, which was in the rear, but I do not know whether he took any action to stop the train or not. Several times daily I have to shunt all sorts of goods and empty carriage trains across this cross-over road into the up loop to clear the main line, and to reverse the empty passenger trains from Burnley ready to return there. There are no set-back signals to indicate to which road the train is travelling, and I have therefore made it a practice to instruct the men in charge of the train into what road they are going. Had there been set-back signals at this cross-over road they would have been properly locked with the loop line points. The weather was very foggy at the time and I could not see the points. I attribute the mishap to my forgetfulness in not having reversed the loop line points. The facing points leading to the down branch were bolted, and I thought, from looking at the levers, that the lever which was over was the lock-bar for the points leading into the loop, instead of which it was the point lever and the lock bar lever was back. These levers are next to each other, and I did not go close up to make sure. There is no outlet signal at the east end of the loop, and trains which are shunted into the up loop requiring to go in the down direction have to be called out by hand. I am not inserting the train circuit calls in the train book, because we have not time to do it.

*W. Southworth*, driver, Lostock Hall, states: I was working the 8.13 a.m. passenger train, Preston to Todmorden, on November 5th. I signed off duty on the 4th at 6.20 p.m., and on again on the 5th at 7.20 a.m., expecting to finish about 6.40 p.m. I was working engine No. 872, which is a four-coupled bogie passenger engine with six-wheeled tender, fitted with automatic vacuum brake on all wheels, except the four bogie wheels, and also hand brake on tender. When I got to Stansfield Hall I got the signal for Todmorden No. 4 box, and as I knew there had been an accident I was not astonished. I found the home signal for No. 4 box was at danger, and I came to a stand at it, and stood about 10 minutes. Then the signal was lowered, and I drew down towards the signal box. Somebody opposite the box instructed me to draw my train down clear of the cross-over road, and he would hook another engine on to me and draw us into the station. After standing two or three minutes a pilot engine came up to the train and connected the vacuum, the pilot engine blowing the vacuum brakes off. The pilot engine whistled and commenced to drag us across the cross-over road. After we had started a foreman porter got on the steps of my engine, and he was on all the time. As my engine was opposite the signal-box I heard somebody shout out "Whoa" twice, and I immediately applied my brake, but I felt the shock of the collision almost as soon as the brake was applied. It was very foggy, but I could have seen a big object about 40 or 50 feet off. No one complained to me. My train consisted of four bogie vehicles with van compartment at each end. Only the tender buffers of my engine sustained slight damage. One pair of wheels of the third van, next to my engine, was off the road. I occupied myself keeping the passengers off the down line, and also warned the signalman at No. 4 to block all roads. My fireman worked the same hours, and also signed off the same time the day before, as I did.

*Jos. Edmondson*, driver, Rose Grove, states: On November 5th I was working Todmorden No. 2 pilot. I had signed off duty at 3.20 a.m. on the 3rd and next came on duty at 12.50 a.m. on the 5th, expecting to finish about 1 p.m. I entered the service in 1884, and have been a booked driver for about 15 months. I was working engine No. 944, which is a six-wheels-coupled goods engine and six-wheeled tender, fitted with automatic vacuum brake, and hand brake on tender. About 20 minutes before the accident happened I was turned into the up loop from the down main line at Todmorden No. 4 box. On passing the box the signalman told me to get clear inside, and to do this I had to buffer up to the engine of a goods train standing in the loop. I had been standing about 15 minutes, when I think it was the foreman porter came up and said, "Go outside and get hold of the train," which was on the down main line just through the cross-over road. The foreman travelled on the step. My mate coupled up to the passenger train and connected the vacuum pipes as well. The foreman then told me I was right now for the station, and on receiving a hand signal from him I proceeded. I was on the look-out for a signal from the signalman, and he called out "Right away," and also gave me a hand signal. I then gave the engine more steam. On passing under the overbridge I noticed my engine was not running square with the bridge, and I thought there was something wrong. I was running eight to ten miles an hour at the time. I shut off steam



and applied the brake, but I had not time to stop the train before I came into collision with engine No. 1057, which was attached to the goods train in the up loop. I at once noticed that a hole had been made in my tender, and that the water was rushing out, and told my mate to put out the fire. I then went back to the signalman at No. 4 box, and asked him if he had forgotten that he had the points set for the loop, and he said at once he had. We were running engine first at the time, and the hole in the tender was made by the carriage buffer piercing it. The right hand buffer of the engine was broken off and the buffer spindle of the left hand buffer was also broken, and one tender buffer spindle as well. There was nothing else damaged. I was not hurt. I do not think we should be going above four miles an hour when the collision occurred. I shut off steam and applied the brakes before I saw the goods train in the up loop.

*Joshua Brooksbank*, driver, Leeds, states: I have been in the service since 1882, and a booked driver about 3½ years. I signed off duty on the Sunday morning (November 3rd) at 6.40 a.m., at Leeds, and on again at 6.10 p.m. on the 4th, to work a goods train from Leeds to Rose Grove. I then worked the 11.45 p.m. goods train, Rose Grove to Leeds, and on arrival at Todmorden No. 4 box about 6.30 a.m. I set my train back into the up loop in accordance with the instruction of the signalman. I had wired for relief from Rose Grove to Lowmoor. We had been delayed on account of fog and accident at Todmorden. I had 46 loaded waggons and a van on my train. I just got inside the loop line and clear of the points by about two yards. Some time after this a pilot engine was put in front of me and helped me push my train back so that he could bring his engine through the loop points, and he was only just through the points when he came to rest. When he backed into the loop line my engine was carrying two green lights, and on coming to a stand in the loop my fireman changed one of the green lights to a red one.

*Frederick Dixon*, acting fireman, states: I have been in the service 9 years, and an acting fireman about 5 years. I signed off duty at 4.35 a.m. on the 3rd, and on again at 6.10 p.m. on the 4th, to act as fireman to Driver Brooksbank. When we came down to Todmorden we had two green lights on the engine, and when the train had come to rest in the up loop I changed one of the green head lights to a red one. An hour after the accident I looked at the lights and found them still burning. There was a white

light on the buffer plank of the pilot engine which ran into us.

*Jos. Newsam*, foreman porter, Todmorden, states: I have been in the service 12 years, and have been at Todmorden 4½ years, all the time as foreman. On the morning in question, owing to the accident at No. 3 box and the branch being blocked, I had to conduct the Preston to Todmorden train, due at 7.13 a.m., into the station, and I was sent for to conduct the 8.13 a.m. train, Preston to Todmorden. It has been the practice at this station to conduct trains through the cross-over road because the cross-over roads are not signalled, and also to ensure that the engines are detached and attached properly before they start. I saw the cross-over road points scotched over for the train, and gave the driver a signal when ready. Whilst the pilot was drawing the train towards the station I rode on the step of the rear engine. When we got opposite No. 4 box I saw the signalman come out of the box and shout to us to stop. The driver immediately applied the brake, but the accident occurred directly after this. I dropped off the engine and went round the train and saw that the trailing wheels of the bogie carriage next to the train engine were off the road with one pair of wheels. The driver was keeping back the passengers, who had alighted from the train, from getting on to the down main line. I went back to the signal box to see that the signalman blocked the roads in all directions, and I commenced to get single line forms ready, so as to open single line workings between No. 4 box and Eastwood. The inspector then arrived and took charge. The signalman told me that he had forgotten to reverse the loop points.

*John Henry Burgess*, guard, states: I entered the Company's service in 1888, and have been a passenger guard 7 years. I came on duty at 8 a.m. on 5th November to work till 7.40 p.m., having previously come off duty at 7.30 p.m. on 4th. I was guard of the 8.13 a.m., Preston to Todmorden, train which consisted of engine, bogie carriage van, bogie composite, six-wheeled third, and a bogie carriage van, fitted throughout with automatic vacuum brake, except the centre pair of wheels of the six-wheeled third. After the pilot had taken hold of us and as we passed No. 4 signal box the signalman said "Right away." I was riding in the rear van of the train, which was then next the pilot engine. It was very foggy, and I could not see the driver and fireman on the footplate. There were about 80 passengers in the train. No one complained to me of injury, but complaints were made at the station.

### Conclusion.

There is no dispute as to the circumstances under which this slight collision occurred. Owing to an accident on the previous evening, which blocked the branch lines from Burnley to Todmorden, the 8.13 a.m. up train from Preston to Todmorden could not be run over the up branch line which joins the up main line at No. 3 signal-box, but had to be sent on to No. 4 box on to the down main line, and there reversed and drawn into the station on the up main line by means of a pilot engine.

The train in question was brought to a stand at the up home signal from Burnley at 9.36 a.m. by Signalman Berry at No. 4 box, who then telephoned to the station for a man to conduct the train into the station, as that is the practice at the place. Berry then had the train drawn down below the points of the cross-over road on to the down main line, and told the driver that an engine would be put on to the train to draw it back into the station.

The pilot engine was waiting in the up loop, where was also the 11.45 p.m. goods train from Ross Grove to Leeds, which had been delayed by fog and by the accident of the previous day, and had been shunted from the down main line across into the up loop.

The engine of the goods train was very near the entrance to the loop, there being just room for the pilot engine ahead of it inside the loop points.

As soon as the conductor for the train had arrived Berry let the pilot engine out of the up loop and through the cross-over road on to the down main line, where it was attached to the tail of the passenger train, and as soon as the points of the cross-over road had been scotched over, Newsam the conductor gave Edmondson the driver of the pilot engine the signal to start, which he accordingly did. Edmondson also got a hand signal from Berry as he passed the box. Unfortunately, Berry had forgotten to reverse the points leading from the up loop after the pilot came out from it to be attached to the train, and so the passenger train, instead of proceeding along the up main line, was taken into the up loop, where it came into collision with the goods train standing just inside the loop points.

Edmondson noticed that he was not on the up main line when he was under an overbridge, which is 22 yards beyond the facing points leading to the up loop, and 45 yards from where the engine of the goods train was standing in the loop. He immediately shut off steam and applied his brakes, but could not stop his train in time to prevent a collision, though the shock was not severe.

Signalman Berry is alone to blame for the mishap, which he explains occurred through mistaking two adjacent levers in the frame when he looked along it to see if the road was rightly set for the train to be drawn into the station. The fog was so thick that he could not see the points themselves.

It was unfortunate that there were no set-back signals for the cross-over road to indicate to which road the train was travelling; had there been these signals they would have been so interlocked with the points of the up loop that it would have been impossible to have pulled off the signal for setting back on to the up main line while the points were set for the up loop.

As goods and empty carriage trains have to be shunted across the cross-over road several times a day the Company would, I consider, be well advised to add the necessary signals for the operations involved. I understand these would have been erected before now but for the fact that the box is a very old one and that there is a probability of large alterations being undertaken at Todmorden.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
E. DRUITT,  
Major, R.E.

#### APPENDIX.

##### DAMAGE TO ROLLING STOCK.

###### *Passenger Train.*

No. 152 T.V.—One headstock, one long footboard, and one quarter light broken; two buffers bent; elliptical springs displaced.

No. 373 C.—One diagonal cross timber and one middle-bar split; two buffer rods bent; buffer packing split.

No. 442 C.—One quarter light broken; headstock and gasfittings damaged.

No. 22 T.V.—One headstock, one footboard, one handrail, one headstock cap, one vacuum pipe, one heating pipe, two end panels, four end lining boards, all broken; two buffers and brake-

work bent; body moved; waist panel and gasfittings damaged.

Engine No. 872.—Tender buffers damaged.

###### *Goods Train.*

No. 8348 Low Goods.—One end plank and two muntins broken.

Engine No. 1057.—Leading buffer plate and framing bent; buffers broken off.

###### *Pilot Engine.*

No. 944.—Both tender buffers and tender tank end damaged.

##### DAMAGE TO PERMANENT WAY.

One crossing chair broken.

Printed copies of the above Report were sent to the Company on the 13th December.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department (Board of Trade),  
8, Richmond Terrace, Whitehall, London, S.W.,  
November 28th, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with your Order of the 11th November, the result of my Inquiry into the causes of the collision, which occurred on the 5th November, between two passenger trains at Windsor Bridge No. 3 signal-box, Salford, on the Lancashire and Yorkshire Railway.

In this case, as the 10.15 p.m. Lancashire and Yorkshire Company's train from Southport to Manchester was standing at the home signals of Windsor Bridge No. 3 box, it was run into from behind by the 11.5 p.m. Midland Company's train from Blackburn to Manchester.

The Southport train consisted of a four-coupled passenger engine with leading bogie, six-wheeled tender, a bogie van, two bogie composites, a bogie van, and a bogie third carriage, in the order named, fitted throughout with the automatic vacuum brakes.

The Blackburn train consisted of a four-coupled passenger side tank engine, with a radial axle at each end, a four-wheeled van, a bogie composite, a bogie composite brake, a six-wheeled composite, and a six-wheeled third carriage, in the order named, with the automatic vacuum brakes on all wheels except the centre pair of the two six-wheeled coaches.

The four last compartments of the rear bogie carriage of the Southport train were telescoped. Fortunately these were empty, but of three passengers in the fifth compartment, one complained of being injured.

The collision occurred at 12.14 a.m. during a thick fog.

Details of damage to rolling stock are given in the Appendix.

*Description.*

The main lines past Pendleton Old Station cabin and past Windsor Bridge No. 3 cabin run approximately N.W. and S.E., the up line which is alone concerned in this case, being on the east side of the down line.

The two signal-boxes are 880 yards apart, and the positions of the various signals concerned are as follows :—

The up home signals for Windsor Bridge No. 3 are 150 yards from the cabin towards Pendleton Old Cabin, the up inner distant signals are 584 yards back from the up homes and are underneath the Pendleton Old starting signal, which in its turn is 170 yards from the up outer distant. This latter signal is on the same post as, and underneath, Pendleton Old up inner home signal, which is also the up platform starter for Pendleton Old Station.

Pendleton Old up outer home is 210 yards away from the up inner home, and the up distant is 550 yards further back.

Pendleton Old signal box is just ahead of the up inner home signal, and Pendleton Old Station is between the up inner and up outer home signals.

The positions of the fogmen's huts are as follows :—

The one for Windsor Bridge up inner distant signals is 27 yards away from it towards Pendleton Old Cabin. The up line is fogged by hand. There is no fogman for the Windsor Bridge up outer distant, as this signal is under the Pendleton Old up inner home or up platform starting signal, and there is no room for a fogman between the lines in the station, there being only 4 feet 8½ inches between the two lines instead of the usual 6 feet, so there is a fogman instead for the up outer home placed 67 yards away from it who fogs the up line by hand, and the down main distant signal for Brindle Heath siding box by a machine.

The fogman's hut for Pendleton Old up distant is 100 yards back from that signal on the down side of the line, so he fogs the up line by a machine. He also fogs the down line 126 yards behind the down home signal for Brindle Heath siding box. His machine is fitted with indicators working with the signals concerned.

The gradients are very slight throughout the length of line concerned.

The point of collision was 108 yards behind the up home signals for Windsor Bridge No. 3 cabin.

## Evidence.

*William Lovesey*, Midland guard, states : I am 44 years of age, have been in the service 21 years and a guard for 19 years. On the 4th inst. I was working the 11.5 p.m. Blackburn to Victoria, and my train was composed as follows : Engine, van No. 56, bogie composite No. 450, bogie composite brake No. 195, composite No. 3,112, and a third, No. 1,088. Five vehicles equal to six. The second and third carriages from the engine were bogies, but the rest were ordinary six-wheeled coaches, with the exception of the van, which was a four-wheeled one. It was slightly misty when we left Blackburn, and we ran into a fog at Astley Bridge Junction. We left Blackburn 18 minutes late through waiting for an engine, the Midland engine not having arrived on account of the fog. Our train was worked by Lancashire and Yorkshire engine No. 1,177. We arrived at Bolton at 11.58, 25 minutes late, and left at 12 o'clock, 25 minutes late. There was a thick fog after leaving Bolton. We were slackened going through Pendleton to 10 or 12 miles an hour, but we were not brought to a stand until we came into collision. I was not looking out just at the time of the collision ; but I could not have seen the signals if I had been as the fog was too dense. I was in the van next to the engine because the traffic for London was there, which I had to sort. I think our train would be travelling about 15 miles an hour when we struck the train in front of us. The collision knocked me down and damaged the front of my engine and broke the drawbar and shackle hooks of Midland van No. 56, which was next to the engine. There was a bogie third in the rear of the 10.15 p.m. Southport to Victoria which we ran into, telescoping four of the compartments. I do not know how many passengers were in my train, but there were very few, and none of them complained of injury. After looking to see what had happened, I immediately went back to the signal-box at Pendleton Station to protect my train and inform the signalman of what had happened. Before I got to the box at Pendleton I saw the fog signalman, and told him what had happened, and also told him to let nothing pass him. When I was going up the steps to the box I heard the signalman say to the fogman and the ganger, who was at the foot of the steps, that his advance starting signal was on when the train passed, and either the fogman or the foreman replied that his signal was off. I had previous to this passed the fogman, who was standing underneath the advance starting signal, but I am unable to say whether this is the man who was at the foot of the steps when I called to the signalman. I told the signalman that a collision had occurred and that he was to block both lines. I am quite sure that we did not come to a stand at Pendleton home signal, although we slackened there. The signalman said nothing to me as to the signals being against the Blackburn train. I heard no detonator at Pendleton up distant ; the only detonator I heard after leaving Bolton was just before getting to Windsor Bridge No. 3 distant.

*John Bagnal*, signalman, working in Pendleton Old box, states : I have been in the service five years, and four years in this signal-box. On the day in question I booked on duty at 10 p.m. on 4th, to work until 6 a.m. 5th, my normal hours, the following morning. At 12 o'clock I had the 10.15 p.m. Southport to Manchester offered me

from Bristol Heath Old box. I accepted it at the same time. I got "Train on line" at 12.3. It arrived at Pendleton Station at 12.6, and left at 12.7, having been accepted by the box in advance at 12.4. I gave "Out of section" for it at 12.8, as the tail-lamp man stationed at the bottom of my cabin steps called out to me that the whole of the train had passed. Just as I had given this "Train out of section" I received the "Is line clear" for the 11.5 p.m. Blackburn to Manchester. I acknowledged it at 12.8 ; got "Train entering section" at 12.10, but did not take either my outer home signal, my inner home signal, or my starting signal off. I could not see the lights of any of them as the fog was too dense. I was looking through the window and listening, expecting to hear this train whistle at my home signal, until I saw a light from the fire of the engine as it passed my cabin. I immediately shouted to the driver, to attract his attention, but failed in this. I then gave "Train running away on right line" signal to Windsor Bridge No. 3, and the man at that place acknowledged it by one beat. I then called to my tail-lampman, "Has that train stopped at my starting signal?" He replied, "I cannot see it." I then sent him to the starting signal to see, and when he returned he said, "He has just managed to stop him." I then said, "Is he stood at my advance?" and he (Scott) replied, "Yes." I then got on the telephone with No. 3 to tell him this, and he replied, "Your information is wrong ; the Blackburn train has come into collision with the Southport train." I sent for the station-master at once. I then telephoned to Brindle Heath, and told him how things stood. About 10 minutes after the guard of the Blackburn train came to my box. He told me that a collision had occurred, and that help would be required. I talked to no one else. I have no recollection of saying to the fogman or the foreman platelayer that my advance starting signal was on, nor do I remember anybody replying that it was off. Shortly after this the ganger (foreman platelayer) and the fogman came up into my cabin, and said that the driver of the Southport train had been back to the fogman at the advance starting signal to speak to him, but did not say what had passed, and I did not ask. I had a fogman stationed at my outer home signal, which is at the Bolton end of the up platform, and another fogman at the advance starting signal. I heard one fog signal explode before the Blackburn train passed the advance starting signal, but heard no fog signal when the train passed my home signal. This signal is fogged by hand, as the same man attends to a machine which fogs the down distant for Brindle Heath sidings. The advance starting signal is fogged by hand. I am quite sure that the whole of my levers were in the normal position, and I have never known them stick nor had any trouble with them. Neither the homes nor starting signals are repeated, because in clear weather I can see them quite distinctly.

*Albert Downing*, platelayer, states : I booked on duty at 7.30 p.m. on 4th, on the night in question, to work until 7 a.m. 5th, next morning, having previously come off duty at 8.30 a.m. My instructions were to fog Brindle Heath sidings down distant signal and Pendleton up outer home signal. The up home signal I fogged by hand and the down signal for Brindle Heath by machine. I remember the train passing, which stopped at Pendleton Station. The signal

was off for it. After this train had passed, the up home signal was put to danger, but I did not put down a detonator, as just previous to the Southport train passing a train had passed on the down line and exploded a fog signal, and after the Southport train had passed I had some little difficulty in replacing the fog signal in the machine for the down line, and while I was doing this I heard another train approach on the up line. I saw at once that I should not have time to put a fog signal down on the up line, so I ran to try and stop the train by showing the driver a red light with my lamp because the home signal was at "danger." When I showed a red light to the driver of the Blackburn train I shouted, but do not think he heard me as he made no attempt to stop, and he seemed to be going at a terrific speed. I put a fog signal on the line directly the Blackburn train passed. I have had no conversation with any driver since the collision. I could not see the up home signal from the machine, and had to run up to it to see how it was standing. It is 3 yards away.

*Thomas Newsome*, platelayer, states: I booked on duty at 7.30 p.m. on the 4th inst., to work until 7 a.m. on the 5th, having previously come off duty at 7 a.m. I was instructed to fog the up distant signal for Pendleton Old with a machine, which is situated on the down side of the line about 80 yards from the up distant signal towards Bolton. I remember the Southport train passing me and that the distant signal for that train was off, there being a clear road for it. It was put to danger after the Southport train had passed. I placed a fog signal on the up line immediately this train had passed, and a few minutes after I heard the Blackburn train approaching. As the distant signal was still at danger I left the fog signal on the rail and the train exploded it as it passed. This train approached me at a very high rate of speed—50 miles an hour, as far as I could judge—but it was very foggy at the time, and I was surprised to see it travelling at such a speed in a fog; it was quite unusual in my experience. I could not see the up distant signal from where I stood because of the fog, but I was guided by the signal arm on my machine, which was most certainly at danger. The fog signal exploded by the Blackburn train was not so loud as some of them are, but still it made a good noise.

*Richard Buggy*, goods porter, states: I came on duty at 6 p.m. on 4th, having come off at 7.30 a.m. My usual hours are 12. At 9 p.m. on the 4th inst. I was instructed to fog the up inner distant signals for Windsor Bridge No. 3, which are situated under the up starting signal for Pendleton Old. When the Southport train was passing me the advance signal for Pendleton Old was off, but as all the three distant signals were on I left the fog signal on the rail and it was exploded by the Southport train as it passed. I was about 20 yards away from the signal, and could see the lamps. Immediately this train passed I put another fog signal on the up line, and some time afterwards, when the Blackburn train was approaching, I looked at the signals, and noticed that the up advance starting signal was showing a green light, but the distant signals were all at danger. I left the fog signal on the rail and it was exploded when the train passed it. I shouted to the driver, "One off," and the train went on. The train was running fairly fast—a lot faster than one could run. I did not give the driver a light because I had no hand lamp. About 20 minutes after the train passed the guard of the Blackburn train came back and told me there had been a collision and

that I was to let nothing pass. I then looked at the advance starting signal, but could not see any light at all, and about half-an-hour after this the fireman belonging to the Blackburn train came up to me and asked for the ganger's name. The fog was not quite so thick at the time of the accident as it had been half-an-hour earlier. After the Southport train had passed, the light in the top arm changed from green to red. When the light changed from red to green in the top arm for the second train I heard the wire rattle just before the green light came.

*Arthur William Cogan*, scalesman, Salford Goods Yard, states: I have been in the service about 19 months, but before this I had previously served 18 months in the Company's service. I came on duty at 6 p.m. on November 4th, at Salford Goods, and booked off there at 10.30 p.m., when I went to Pendleton Old Station, arriving there at 12 midnight. I finished duty at 7.15 a.m. on the 4th inst. When I got to Pendleton, platelayer Thompson instructed me to look after the men and keep them supplied with fog signals. After seeing the men at their posts I went to the station to get a hand-lamp off the foreman porter for Buggy, and took it to him after the Blackburn train had passed Pendleton Old. When the Blackburn train passed me, I was at Pendleton Old, standing at the bottom of the cabin steps. I heard the signalman shout to the tail-lampman, "Has that man passed my signals?" meaning his advance starting signal. I replied, "I cannot see his tail-lamp." I was not aware that any irregularity had occurred, and I walked down to the advance starting signal, and when I got to Buggy I looked at the top arm on the signal post, and saw that it was showing a red light. When I first got to Buggy I asked him if he had had the signal properly off for the last train, and he said, "Yes," and added, "The top arm was showing a green light." I stopped about 10 minutes talking and asking him if everything was right, &c., and about that time the guard of the Blackburn train came back and made a remark that they had run into something. I went back with him to Pendleton Station Old box. After this I went down to the point of collision with the Blackburn guard. I do not recollect ever telling the driver that the advance starting signal was off, and I know nothing whatever about the matter except what Buggy told me. I did not notice anything particular about the speed of the train when it passed me as I was standing near the box. It was not going very fast. When I returned to the signal-box a second time the signalman said the signals were against the train.

*John Scott*, goods porter, Salford, states: I have been in the service about eight months, and on November 4th I arrived at Pendleton Old at 12 midnight, and was instructed to act as tail-lampman, and to advise the signalman when the trains had passed complete. I stood under the signal-box at Pendleton Old Station. I cannot speak as to the position of the up starting signal when the Blackburn to Manchester train passed it. When the train passed me I advised the signalman that the tail-lamp was right. The signalman said to me, after the train passed me, "There is no road for that train; go down and see if he has stopped at my advance starting signal, or if the fogman has tried to stop it." I went down and found Buggy and Carbery standing together. I asked Buggy, and he said he had not stopped the train, but he did not give me any reason for not stopping it, and I came back and told the signal-

man. Buggy did not say anything about what light was showing in the signal or whether the signal was at danger or not. The train was going pretty fast when it passed me, but I cannot say how fast—perhaps 20 miles an hour. It was much faster than I could run.

*George Stubbs*, signalman in Windsor Bridge No. 3, states: I have been 14 years a signalman, and two years in this box. I booked on duty at 10 p.m. on 4th to work until 6 a.m. on 5th, the following morning, which is my normal turn of duty. I received the "Is line clear" for the Southport train at 12.2 from Pendleton Old cabin, and accepted it at the same time. "Train entering section" at 12.6, and it arrived at 12.8. As I had no road for it I kept this train standing at my home signal, and at 12.14 it was run into in the rear by a Blackburn train which I had not had offered me. At 12.13 I received "Train running away on right line" signal from Pendleton Old, which I acknowledged by one beat. I immediately pulled my home signal off to try and draw the Southport train down to my starting signal, but I heard the collision occur almost directly after I got the signal off. Shortly afterwards the fireman of the Southport train came to my box and explained the situation, and I sent for inspector Wilson to make arrangements for dealing with the traffic.

*Roger Hailwood*, acting driver, states: I entered the service in December, 1889, and have been an acting driver since 1894. I signed off duty at 10.5 a.m. on Monday morning, the 4th instant, and signed on again at 6.50 p.m. to work a train from Blackburn to Aintree S.S., but owing to the fog upsetting the workings I was called upon unexpectedly to work the 11.5 p.m. Midland train Blackburn to Manchester, as the Midland engine had not turned up. We left Blackburn at 11.23 p.m. After leaving Bury Junction the train did not stop until it came into collision. I did not catch the distant signal for Pendleton, nor did I explode a fog signal, but I treated it as at danger and reduced speed to be able to stop at the home signal at Pendleton. I saw the outer home signal showing a green light, and I saw someone there who gave me a green hand signal, but I could not see the man. I went cautiously through the station at about seven miles an hour and saw the starting inner home signal to be off, but the outer distant for Windsor Bridge No. 3 beneath it on. I went slowly on until I exploded a fog signal before I came to the starting signal, which I found to be showing a green light, and the fog signalman also gave me a green hand signal. I could see the fogman. The Windsor Bridge distant signals underneath the starting signal were at danger. I whistled and went on, and the next thing I saw was the tail-lamp of a train ahead, at which time I think I should have been going about 15 miles an hour. I applied my brake, but the engine crashed into the rear vehicle of the train in front. I got off my engine and had a look round to see what had happened. No one complained to me of injury. I then went down my own train and examined it. I returned to my engine and told the fireman to stay there. I started to go to Windsor No. 3 but I met the driver of the other train, who said he had sent his fireman up. I also met the guard of the Southport train, who informed me he had sent the fogman at Windsor Bridge No. 3 home signals to the No. 3 cabin to block both lines. I then went back to the engine. I was running at seven miles an hour at the Pendleton starting signal, but afterwards gained

speed because I blew my brakes off. I did not reduce speed when I passed the Windsor Bridge No. 3 distant signal at danger, because I knew exactly where I was, and had my train under control and knew I could stop at Windsor Bridge No. 3 home signal. I sent my fireman to the fogman at Pendleton advance signal to ask him for his name, because I had been told by ganger Cogan that the Pendleton advance signal was off for me. I sent for the fogman's name so as to have a witness in my favour. I have heard the evidence of fogman Downing, and am positive that I saw the home signal off and received a green light from someone whom I took to be a fogman. I have also heard the evidence of fogman Newsome, who was at the Pendleton signal, and I did not explode any fog signal at that point.

*Nathaniel Kershaw*, acting fireman, states: I have been in the service five years. I signed off on Saturday, 2nd, at 2 p.m., and came on duty on Monday at 3 p.m. to work till 9.10 p.m. with driver Hailwood. I was fireman to Hailwood on the Blackburn train to Manchester. The last stop before the collision was Bolton Station. We did not catch Pendleton up distant signal, but I heard some one call out, "Right," but I do not know on which side of the line, and I told my mate that I had heard someone shout out "Right," but did not see who it was. He said, "Never mind, we will go down steady." He applied his brake, as we had shut off steam after leaving Stoneclough. We went over a detonator at the Pendleton advance signal. I did not see either the home signal or the platform starting signal, but I saw the advance signal as I was going across to my mate's side. I did not see any fogman. I could not see the tail lights of the train we ran into. Some time after the accident my driver sent me back to the fogman at the advance signal, and on arrival there he (the fogman) asked me if I was hurt, and I replied, "Not much." He told me the starting signal was off. We were running very slowly through Pendleton Station, and continued to run slowly, but the driver took his vacuum brake off after passing Pendleton inner home signal. I kept my hand brake on slightly, and continued to go dead slow all the time.

*George Welsh*, guard, states: I came on duty 12.30 p.m. on 4th, to work till 12.30 a.m. on 5th. I previously came off duty on 2nd. I was instructed to work the 10.15 p.m. Southport to Manchester on November 4th, and my train was composed as follows:—engine, bogie van, two bogie compos, a bogie van and a bogie 3rd. I had to work this train because the regular guard had not arrived. The train was brought to a stand at Windsor Bridge No. 3 home signal, and after it had been standing there about five minutes I felt a shock in the rear, but was not hurt. I got out of my van and went to the rear of the train to see what had occurred, and found that another train had come into collision with the rear of my train, and the engine had penetrated about four compartments of the rear vehicle. I did not examine the Midland train. There were three passengers in the fifth compartment, and they asked me what was the matter. I told them and asked them if they were hurt, and a gentleman named Mr. Rosanson stated that he was injured. A fogman and my fireman lifted the passenger out and carried him to a compartment in the front of the train. The other passengers, a lady and gentleman, were assisted out of the compartment, and they joined



the front portion. I then went round my train and examined it. Whilst doing so several passengers spoke to me, enquiring what was the matter. I told them an accident had occurred, but no complaint of injury was made by anyone else. I requested a fogman to go to the signalman at Windsor Bridge No. 3 and tell him to block the roads. I then went to the Midland train, out of which some of the passengers had alighted. After conferring with my driver, who suggested that the passengers and mails should be changed from the Midland train to the front portion of my train, inspector Wilson came upon the scene, and the rear vehicle (which was damaged) was uncoupled, and we went forward to Victoria after a delay of 48 minutes. I did not hear the Midland train approach, and therefore did not take any steps to warn the driver. None of the

Midland passengers complained to me. I was not thrown down or injured.

*William Lowe*, driver, states: I have been over 40 years in the Company's service, 29 years as driver. On the 4th November I booked at 4.30 p.m. to work till 12.30 a.m., 5th November, having previously come off duty at 11 p.m. on 3rd. I was the driver of the Southport to Manchester train which was run into by the Blackburn train. I had been standing at the Windsor Bridge No. 3 home signals about four or five minutes when it occurred. I could not see the signals owing to the fog. When I left Pendleton Station I could not see the inner home signal, as it is so high up, but I could see the outer home signal, and I could see the starting signal.

### *Conclusion.*

There is much conflicting evidence in this case, both as to the position of the signals for, and the speed of, the Blackburn train which ran into the rear of the Southport train while the latter was standing at the home signals for Windsor Bridge No. 3 signal box.

The up Southport train was accepted by signalman Bagnal at Pendleton Old box at 12 midnight. The signals were all off for it, and it arrived at Pendleton Old Station at 12.6 a.m. and left at 12.7 a.m. It had been accepted by signalman Stubbs at Windsor Bridge No. 3 box at 12.4, and it arrived at the home signals there at 12.8. It was kept standing at the home signals as there was no road clear for it at the time. Bagnal is quite sure he put back all his signals to the normal position, *i.e.*, against a train after the Southport train had passed, and in this he is supported by platelayer Newsome, who was fogman at the Pendleton Old up distant signal, by platelayer Downing, who was fogman at Pendleton up outer home signal, and by goods porter Buggy, who was fogman at the Windsor Bridge No. 3 inner distant signals, which are on a bracket underneath the Pendleton Old up starting signal.

At 12.8 a.m. Bagnal was offered and accepted the Blackburn train, but says he kept all his signals against it and did not offer it to the box in advance, *viz.*, Windsor Bridge No. 3, and that he expected to hear it whistling at his outer home signal, where it ought to have stopped.

The evidence as to the position of the signals for the train is contradictory.

Bagnal states they were all against the train, and in this he is supported as regards the distant signal by platelayer Newsome, who also says the train exploded a fog detonator at it, but that the report was not so loud as that made by some detonators. Hailwood, the driver of the Blackburn train, says he did not see the Pendleton distant signal nor did he hear a detonator, and in the latter statement he is supported by his fireman (Kershaw) and his guard (Lovesey), who was riding in the van next to the engine. He also says that he treated it as a danger signal, and reduced speed so as to be able to stop at Pendleton Old outer home signal. The next signal, *viz.*, Pendleton up outer home was at danger according to the signalman (Bagnal) and the fogman (Downing), but Downing says, owing to his being occupied with the fogging machine for the down distant signal for Brindle Heath, he had not put down a detonator on the up line after the Southport train had passed. When he heard the Blackburn train coming he thought it was too near him to try and put a detonator on the up line, but he says he ran to try and stop the train by showing a red hand signal, because the home signal was at danger. Hailwood, the driver, declares that the outer home signal was off for him and showed a green light, and that some one there showed him a green hand signal. His fireman (Kershaw) did not see either the outer or the inner up home signal for Pendleton Old. The inner home, which is the platform starting signal for Pendleton Old Station, had no fogman, and Hailwood declares he could see it and that it showed a green light, while the signalman (Bagnal) declares the lever was in its normal position in the frame.

The next signal, *viz.*, the up starting for Pendleton Old, Bagnal, the signalman, declares was against the train, while both the driver and fireman declare it was off for them, and the fogman at it, *viz.*, goods porter Buggy, also says the top arm showed a green light, and that he called out to the driver, when passing, "One off," meaning that the up starting signal was off for the train.

The rear of the Southport train was 476 yards beyond the Pendleton Old up starting signal, and 108 yards behind Windsor Bridge No. 3 home signals, and so was run into by the Blackburn train while the latter was running at a speed of 15 miles an hour.

It is impossible to reconcile the above statements, all made apparently in good faith, but I think it most improbable that a signalman with a good record should, after putting his signals to danger after the passing of one train, lower them for a following one which, though he had accepted, yet had not offered to the signal box in advance.

When the Blackburn train ran past his box, Bagnal immediately sent the "Train running away on right line" signal to Windsor Bridge box, and sent his tail-lamp man to see if the train had stopped at the starting signal.

On receiving the "Train running away on right line" signal, Stubbs, the signalman at Windsor Bridge box, lowered his home signal in order to get the Southport train forward, but before the train started the Blackburn train had run into it.

I think it possible that Hailwood, not hearing a fog detonator explode at the up distant signal for Pendleton Old, thought that it was off for him, although he could not see it, and also not getting one at the outer home signal led him to think that all the signals were off for him. I consider it practically certain that the outer home signal was at danger, and, as Hailwood was running fairly fast at the time, I think it very doubtful if he saw it.

I think it certain that Hailwood could not have seen the inner home signal, as it is high up above an overbridge, and driver Lowe of the Southport train, who had passed it five minutes before when starting from Pendleton Old Station, states that while he could see the outer home and starting signals, he could not see the inner home signal.

As regards the starting signal, it appears by some means to have been off for the train, and if porter Buggy, the fogman at the Windsor Bridge distant signals, which are on the same post, had not definitely stated that it was put to danger after the Southport train had passed, I should have thought it probable that signalman Bagnal had forgotten to do so. As he did put it to danger after the first train had passed, I think it most improbable that he pulled it off again.

There is also considerable discrepancy as regards the speed of the Blackburn train. Platelayer Newsome, who was fogman at Pendleton Old up distant signal, states it passed him at a very high rate of speed, while Downing, the fogman at Pendleton Old outer home, states that it appeared to be going at a terrific speed. Lovesey, the guard, says the train slackened speed going through Pendleton to 10 or 12 miles an hour, while Hailwood, the driver, says he went seven miles an hour through the station. I think that the estimate of the Midland guard is probably the most correct.

After passing through Pendleton, Hailwood admits that though the outer distant signal for Windsor Bridge No. 3 was against him, he increased his speed to 15 miles an hour, and also that he continued to run at that speed after passing the inner distant signals at danger until he ran into the rear of the Southport train standing at Windsor Bridge No. 3 home signals.

The rear of this train was only 108 yards behind the home signals, and as Hailwood had not applied his brakes before he saw the tail lamp of this train, I think it very doubtful if he would have stopped before passing the home signals had there been no obstruction. Hailwood, however, states that he did not reduce speed after passing the distant signals because he had the train well in hand and knew exactly where he was and that he could stop before reaching the home signals.

Putting the question of the position of the signals aside, I consider even if all the signals were off as stated by Hailwood, that he was not running in as careful a manner as he should have done considering the thick fog that prevailed, and for this he is to blame.

I have, &c.,  
E. DRUITT,  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.



## APPENDIX.

## DAMAGE TO ROLLING STOCK.

11.5 p.m. Blackburn to Victoria.

Engine No. 1177.—Leading buffer plate bent and buffers broken; smokebox door driven in; lamp brackets, handrails, platform angle irons damaged.

Midland Company's Van No. 56.—Drawhook and shackle broken.

Midland Company's Bogie-Composite No. 450.

—One headstock and one centre casting bolt broken.

Midland Company's Bogie-Composite Brake No. 195.—Two wood top centre beds, one headstock, two end panels, one buffer casting, and four casting bolts broken.

10.15 p.m. Southport to Victoria.

Lancashire and Yorkshire Company's Bogie Third No. 2599.—Broken up.

Printed copies of the above Report were sent to the Company on the 3rd January, 1902.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,

8th January, 1902.

SIR,

I have the honour to report for the information of the Board of Trade, in compliance with your Order of the 18th December, 1901, the result of my inquiry into the causes of the collision which occurred on the 14th December between a passenger train and the rear portion of a coal train at Chew Moor, Westhoughton, on the Lancashire and Yorkshire Railway.

In this case the 10.15 p.m. passenger train from Manchester to Southport ran into the rear portion of a coal train which was setting back on the down loop line, but which came out on to the down main line instead of going towards the buffer stops at the dead end of the loop line, through the failure of the trailing points in the down loop line to reverse when the lever working them was put back in the frame.

Eleven passengers complained of injuries, and the fireman of the passenger train was also injured.

The passenger train consisted of a four-coupled radial tank engine fitted with the automatic vacuum-brake on the four coupled wheels, and of the following carriages in the order named :—

Bogie third van,

„ third,

„ composite,

„ third,

„ „  
Third, six wheels,

„ „  
Bogie third van,

fitted with the automatic vacuum brake on all wheels except the centre pair of the two six-wheeled carriages.

The coal train consisted of engine, 43 empty coal waggon and a brake van. Seven waggon of the coal train were derailed, but no vehicle of the passenger train left the rails.

The accident occurred at about 11 p.m. The night was quite clear.

Details of damage to rolling stock and permanent way are given in the Appendix.

## Description.

Between Chew Moor and Westhoughton Goods Yard signal boxes the down main line and down loop line, which are alone concerned in this case, run parallel to each other and approximately from east to west, the down loop line being to the south of the main line.

The facing points leading from the down main to the down loop are 67 yards to the west of Chew Moor box, the home splitting signals being 38 yards to the east of it. The distant signal is 628 yards behind the home signal.

The trailing points leading from the down loop to the down main line are opposite Westhoughton Goods Yard cabin, situated 666 yards to the westward of Chew Moor.

The trailing points forming the traps of the down loop at the Chew Moor end are worked by the same lever as the facing points in the down main line, and the down loop line is continued back behind the trailing points for a distance of 100 yards, forming a shunting neck, the buffer stops being only 12 yards from the west side of Chew Moor signal-box.

At a point 265 yards from the buffer stops along the down loop are the trailing points of a siding known as Snydale Colliery siding, and these are worked from a ground frame situated 40 yards back from the trailing points, and just opposite the trap points of the siding. On the other side of the main lines are two up goods loops and a number of sidings known as Chew Moor up sidings, and to get to these a train in the down loop would have to get out on to the down main line at Westhoughton Goods Yard box, and be crossed over to one of the up loop lines. The gradient of the down main line from the distant signal to the facing points leading to the down loop is 1 in 278 falling.

### *Evidence.*

*Charles Whitham*, signalman, states: I have been in the Company's service 25 years, and have been a signalman at Chew Moor box for about 20 years. On December 14th, the day of the mishap, I booked on duty at 10 p.m. to work until 6 a.m., having booked off duty on the 14th at 6 a.m. I admitted the 4 a.m. empty coal train, Castleton to Bamfurlong, into the down loop at 10.48 p.m., and it was clear inside at 10.49. At 10.55 p.m. I received "Is line clear" signal from Lostock Junction box for the 10.15 p.m. passenger train, Manchester to Southport. I acknowledged it same time, and received "Train entering section" at 10.59. I noticed that the coal train had drawn a considerable distance up the loop, and just as I was receiving the "Is line clear" signal for the passenger train they telephoned from the Exchange sidings box that the train was going to set back to put some waggons into Snydale Hall Colliery siding. I had already shut the train in the loop and I replied, "Right," and then went to attend to the passenger train coming on the main line. The first I noticed of anything being wrong was hearing a noise at my levers, and a grinding noise outside my box, which made me think something was wrong with the points, and I then noticed that the brake-van of the coal train was re-entering the down main line. At that time the approaching passenger train had not arrived at the level crossing to the east of my cabin. I had all my signals off for the passenger train, and I at once reversed them and exhibited a red light from the cabin window. I cannot exactly say when the driver shut off steam, but he had certainly done so just after he had passed the level crossing. The collision occurred at a point between the end of the loop buffers and my box. When I saw the coal train on the main line I thought at once there must be something wrong with the points. I did not give "Obstruction—danger" signal immediately, but went to the telephone and told the signalman at Westhoughton East box to inform the stationmaster that there had been a collision. I gave the "Obstruction" signal for the up main line five or six minutes after the collision occurred. I had not noticed anything wrong with the points leading to the down loop when I worked them previous to the accident, and my levers worked very much as usual, nothing different to call my special attention thereto. After the mishap happened I did

not go to examine the points as I was busy with my work in the cabin. From the time I came on duty at 10 p.m. I had not had occasion to back a train through the points to the buffer stops prior to the coal train in question. From my train-book I see that six trains had gone into the down loop since 3.54 p.m. that afternoon.

*Donald Dallas*, goods guard, states: I have been in the Company's service 28 years, and a goods guard for over 25 years. On December 14th I booked on duty at 4 p.m. to work in the ordinary course to 2 a.m. I was working with the 4 a.m. empty waggon train, Castleton to Bamfurlong, and we arrived in the Chew Moor down loop at 10.51 p.m. My train consisted of 43 empty waggons and a brake-van, and when we came to a stand in the loop my van would be about four waggons' length on the Westhoughton side of Snydale Colliery points. I had only one waggon off for Westhoughton. It was next to the engine, and I walked down towards the engine to detach it, my object being to put it in Westhoughton Colliery siding. I had got out of my van on the main line side, and as I was walking down a shunter in the up sidings asked me what waggons I had off. I told him I had "one off" for Westhoughton Colliery. He then said Westhoughton Colliery siding was full, and that I must set back to dead end of down loop and put the waggon in Snydale Colliery siding. I had a suspicion that there would not be sufficient room for the whole of the train to stand between the buffers and the Snydale Colliery siding, and I intended if that was the case to put off what I had too many in the siding, and then place the odd waggon I wanted off and back the rest up again. I asked the shunter at the goods siding box to ask the signalman at Chew Moor box for permission for me to set back. Having got that permission I walked down towards the engine to signal the driver back. When he acknowledged my signal by whistling I ran back to the van, and got through the van and out on the Snydale siding side of the train, so that if the train got sufficiently back I should be ready to go on with my work of shunting the waggon. The driver moved back dead slow, and I saw that we should be able to detach the waggon without further shunting. Just as I was hooking the waggon off the collision occurred, and I ran back to see what was amiss. I was surprised to find

that the train instead of going towards the dead end of the loop had gone out on to the main line. It is three years since I put a waggon in this siding before, but I know the place. When calling the driver back I gave him a white light until I thought he was getting towards the buffers, and I then gave him a green light. I could not see that the train was taking the wrong road from where I was standing, viz., at the trap points of Snydale siding. I had the proper side and tail lamps on my brake, and I turned the side lamp nearest to the main line to a white light before leaving the brake. At the moment I did not remember the instructions on page 217 of the Working Time Book Appendix, which states that guards should not have more than 40 waggons in rear of those they have to put off at Snydale Colliery siding, and it therefore did not occur to me that 42 waggons and a van could not be placed between the buffers and the points for Snydale. I could not see the set-back signal for going out on to the main down line from the position in which I was standing. When I examined my train after the accident I found that the 29th waggon from the engine had its leading wheels on the switches and its trailing wheels off the road. The switches were set for the dead end. The 30th waggon was on the rails all wheels leading to the main line. The remaining 13 were all on the rails leading to the main line or out on the main line. I did not examine the trailing points of the down loop after entering the loop, as I did not intend to detach there. My train ran a long way down the loop, but I did not set back without permission.

*J. McTaggart*, signalman, states: I have been in the service 14 years, and have been a signalman in Chew Moor box for 10 years. I booked on duty on December 14th at 2 p.m. to work until 10 p.m., and was relieved at that time by signalman Whitham. The last occasion on which I made use of the points leading to the down loop was at 7.53 p.m., as at that time I turned a coal train from the down main line to the loop. This train left the loop at 10 p.m., but it had no occasion to set back to the buffers. I shut the points immediately the train was clear inside, and I did not notice anything unusual with the points when I moved them. Just after a train entered the loop during the afternoon of the day of the accident, foreman platelayer Whittle shouted to me to try the points in question, and I pulled them over, and he then gave a signal to show they were in the usual order. I cannot remember the exact time. I cannot recollect any train setting back to the buffers of the loop whilst I was on duty.

*William Whittle*, foreman platelayer, states: I have been in the service 20 years, and a foreman platelayer on the length between Lostock Junction Station and Westhoughton East cabin for 17 and 18 years. I examine all the points in my section always once a day and sometimes twice. Whilst a train was entering the loop between 3 and 4 p.m. on the date of the accident I noticed that the points were in good working order. After the train had passed them I saw the points put back into their normal position. That was the only time I saw the points worked that day. There was nothing unusual about the working of the points, and they appeared to work quite freely, but I do not examine the connections thereto, because this is not part of my duty. After the waggons had been got on the road, I examined the points with the foreman signal-fitter. Before the waggons had been got on the

road the foreman fitter disconnected the points at the crank on the opposite side of the road. After the waggons had been got on the road the signal fitter and I connected the points again at the crank, and then I found the switch was not tight against the stock rail, but was half an inch away from it. I then looked about for the cause, and found that the point rod was out of the barrel of the adjuster. This would be about two or three o'clock in the morning. We examined the screw afterwards and found that the screw in the rod, and the screw in the barrel were not in any way stripped, and there was no mark to indicate that it had received any blow. About five or six weeks ago I found it necessary to adjust the screw, but this increased the hold of the screw in the barrel. When I examined the adjuster on the Sunday morning after the mishap, the check nut indicated that the screw would not have had more than half an inch hold in the barrel. At the time I increased the hold I did not actually look to see what hold the screw had in the barrel. I have not had any difficulty with these points and connection, and I have never known them tampered with.

*Thomas Winstanley*, signal fitter, states: I have been in the service for 13 years, and a signal fitter for two years. It was part of my duty to examine the facing points and connections at and about Chew Moor cabin. On December 13th about 3.30 p.m. I arrived at Chew Moor cabin, and commenced my inspection of the facing points. I examined the whole of the connections working the points leading from the down main line to the down loop. I cleaned the facing point connections and tightened up the cotters and connections therewith, examined all clip bolts, and had them tried by the signalman. When the signalman tried the points on the afternoon in question, the trailing points worked well. I did not examine the adjuster of the trailing points because I did not think it necessary, as the points worked all right and fitted well on both sides. If I had found any failing whatever in the working of these points, I should have examined the whole of these connections thoroughly through. I did not see the adjuster until the Monday after the accident. When we disconnect points we always look at the adjuster. We only disconnect points when we are ordered to by the foreman.

*Joseph Blinstone*, signal fitter, states: I have been in the service 23 years. On October 30th last I examined the points and connections at and about Chew Moor cabin. On this date the facing and trailing points were working well. I examined the adjusting screw of the loop trailing points, and at that time the screw was about two inches in the barrel judging by the length of thread on the rod outside. I tightened up the check nuts at the time. I cannot speak of the connections since the 30th October, as they have not come under my round of duties. All rods have a length of screwed thread of between six and seven inches. On October 30th I had to let the rod out of the barrel about one turn and a half, i.e., nearly a quarter of an inch.

*Joseph Walker*, foreman signal fitter, states: I have been a foreman signal fitter for 12 years. On the 27th November last I examined all the connections from the controlled locks to the cabin at Chew Moor box. I inspected the loop points, but did not notice anything wrong with them. I could not say what hold the screw had in the adjuster of the trailing points, but the lock nuts

were tight up against the barrel. After the collision inspector Pinder told me to disconnect the trailing points at the crank. I went to the facing points and found them right. I then examined the rodding from the cabin to the trailing points, and this was all right as far as I could see. I did nothing further till at about 4 a.m. my attention was called to the adjuster by the foreman platelayer. On examining the same I found that the barrel was off from the screw next to the points, away from the main line. There was no indication of the screw of the rod or the screw of the barrel being stripped, and the lock nut was about  $\frac{3}{4}$  of an inch from the end of the screw. I do not think it would be possible for the screw to be drawn from the boss without the threads being stripped, or some other indication. Afterwards we recoupled the connections, and coupled up the points again. We had to lengthen the rodding by 2 inches before we could get a good hold between the rodding and the barrel, 1 and  $1\frac{1}{2}$  inches at each end. The screw in the boss was a fair fit, and not in any way loose. Subsequently we put in a new bit of rodding  $5\frac{1}{2}$  inches longer than the old one, and there is now a hold of 3 inches in each end of the adjuster.

*John Hawkins*, driver, states: I have been in the Company's service 23 years, and a booked driver for five years. I signed off duty on the morning of December 14th at 12.30 a.m., and on again at 12.40 p.m., expecting to finish in the ordinary course about 12.30 a.m. I was working the 10.15 p.m. passenger train, Manchester to Southport, with engine No. 671, which is a four-coupled radial tank engine, fitted with the automatic vacuum brake on the four coupled wheels. We were running chimney first. We stopped at Lostock Junction, and after leaving there I found the distant signal for Chew Moor box was off, and it was off when I passed it, and all other signals to Westhoughton. I was about 15 yards from the Chew Moor home signal when it was thrown on. I at once shut off steam, applied the brakes, and reversed the engine, and was about to open the regulator again when I came into collision with the rear of the coal train, and I was knocked on my back. As soon as I saw the signals thrown on I called out to my mate to hold on, but I afterwards found he was not on the footplate, and after the collision I looked for him and found him about two carriage lengths from the engine, where he was being attended to. I cannot say whether he jumped off the engine or was knocked off. I saw the signalman's red light almost at the same time as the signals were thrown on. I think if I had had another 30 yards to run I could have pulled the train up. We should be travelling about 15 or 20 miles an hour when I struck the brake-van. When I was passing the distant signal for Chew Moor I noticed the lights of the train ahead of me, and one light was showing white, so I thought it was in the loop. It was a very clear night, and I could see all the signals right away to Westhoughton Station. The buffers and buffer plank of the engine were damaged

and the vacuum pipe was broken. No wheels of my engine or train left the rails. The first indication I had of anything being wrong was seeing the signals thrown on in my face.

*Barton Fairhurst*, guard, states: I have been in the Company's service 40 years, and a guard 25 years. On December 14th I booked on duty at 2.20 p.m. to work in the ordinary course until 11.55 p.m. I was working with the 10.15 p.m. passenger train, Manchester to Southport, and my train was formed as follows:—

Engine,  
Bogie third van,  
Bogie third,  
Bogie composite,  
Bogie third,  
Bogie third,  
Third (6-wheeled),  
Third (6-wheeled),  
Bogie third van,

fitted with the automatic vacuum brake on all the carriage wheels except on the centre pair of the two six-wheeled carriages. The brake was in very good order. I was riding in the rear van. I think the engine of my train would be just through the Gatehouse level crossing when I felt the brakes applied with full force. I held on tight, and when we came into collision I was thrown on the floor. I was up immediately, relit my hand lamp, which had been knocked out, and went to the front end of the train to see what had happened. When I saw what had occurred and that the up road was blocked, I sent a man who was standing by to protect that road, and I then went along the train and saw the fireman on the ground injured. I reassured the passengers, and went back to the van and got some fog signals to protect my train, the driver having told me that he had been in the cabin to inform the signalman all about the accident. It was a remarkably clear night. My train was full at the time, and eight or nine passengers complained to me of being injured.

*William Crabtree*, driver, states: I have been in the Company's service 25 years, and a booked driver 11 years. On December 14th I signed off duty at 9.20 a.m., and signed on again at 5.20 p.m., expecting to finish about 1 a.m. I relieved the men working the 4 a.m. empty coal waggon train, Castleton to Bamfurlong, at Bury. On arrival at Chew Moor I was turned into the down loop and ran down to the goods yard cabin. After standing about five minutes, the signalman came to the top of the cabin steps and told us to set back and put our waggons off in Snydale Hall colliery. I also received a white light from the guard, who appeared to be close to his brake van. We set back, and I noticed from the lights of the brake van that it appeared to be going outside on to the main line, and I mentioned this to my mate. I had managed to stop the train when the passenger train ran into us. I had just reversed my engine. The van at that time would be close to the cabin. The guard was still calling us back on the fireman's side. It was a clear night.

### Conclusion.

This collision was caused by an occurrence of an unusual kind, viz., by the rodding between the trailing points in the down loop line and the crank on the far side of the lines becoming disconnected at the adjusting barrel, which is situated close by the points in the 6-foot space between the down loop line and the down main line.

The facing points leading from the down main line to the down loop and the

corresponding trailing points in the down loop which form the trap points of the latter line are worked by the same lever, so that when the facing points, after the coal train had gone into the loop, were set again for the down main, the trailing points were left set to lead out from the down loop on to the down main owing to the disconnection of the rodding above mentioned.

The events preceding the collision were as follows: Signaller Whitham at Chew Moor signal-box let the coal train in question into the down loop at 10.49 p.m., and it went a considerable way down the loop line for the purpose of detaching a waggon which was next the engine, and which had to be placed in Westhoughton Colliery siding. At 10.55 p.m. Whitham was offered and accepted the passenger train on the down main line from Lostock Junction, the signal-box in rear, and he received "Train entering section" signal for it at 10.59 p.m.

When the rear van of the coal train had got about 300 yards down the loop, and the train came to a stand, guard Dallas, who had got out of his van to go towards the engine for the purpose of detaching the waggon, was met by the shunter on duty at the up sidings, who informed him that Westhoughton Colliery siding was full, and that he must set back to the dead end of the down loop and put the waggon in the Snydale Colliery siding.

Having obtained permission from signaller Whitham at Chew Moor box to set back (the telephone message reaching Whitham at 10.55 p.m., just as he had accepted the passenger train) Dallas signalled the driver of the coal train to set back towards the dead end of the loop, which he accordingly did. The result was that, owing to the points being left set leading out on to the down main line, the brake-van and rear waggons went out on to the main line just as the passenger train was approaching.

The signals were all off for the passenger train, but fortunately signaller Whitham, hearing an unusual noise, thought something was wrong with the points, and looking to see the cause observed the rear of the coal train re-entering the down main line. He at once put his main line signals to danger and showed a red hand-lamp from his cabin window. But the passenger train was close up, and though the driver did all in his power to stop he was still running from 15 to 20 miles an hour when he collided with the rear of the coal train.

The driver of the coal train had also noticed that the lights of the brake-van appeared to be going out on to the main line, and stopped his train, and was just going to draw it forward again when the collision occurred.

The guard, who was at the trap point of Snydale Colliery siding on the side away from the down main line, could not see that the train was taking the wrong road.

I do not consider that either of the two drivers or the signaller or the guard are to blame for the mishap.

The disconnection of the rodding at the adjusting barrel must, I consider, have been due to there being hardly any of the screw threads on the rodding engaging with the screw threads in the barrel, as when subsequently examined the rodding was found to fit well in the barrel and not loose in any way, and no threads were found to be stripped.

The adjusting barrel, which is made of mild steel, is 12 inches long over all, and at each end is screwed internally for a length of  $2\frac{3}{4}$  inches with Whitworth screw thread, seven threads to the inch, one end being screwed right-handed and the other end left-handed.

In the centre of the barrel are left slits 3 inches long and  $\frac{3}{8}$  inch wide.

The rodding, which is of  $1\frac{1}{4}$ -inch wrought iron, is screwed at the end for a length of 6 inches to correspond with the screw threads in the barrel, and there are lock nuts on the rodding which should be left screwed tight up against the ends of the adjusting barrel to prevent any shifting of the barrel after adjustment.

The barrel was placed in the 6-foot space between the down loop and down main line, and was covered over with planking. It joined up the rodding from one of the connecting rods of the points with the rodding from the adjusting crank on the far side of the lines.

The disconnection occurred at the end of the barrel next the points.

When the points are opened for a train to enter the loop from the down main the action would tend to push the rodding further into the barrel, and when the points are afterwards shut against the main line by the lever being replaced in the frame the action would tend to pull the rodding out of the barrel.

The collision occurred at about 11 p.m., and between 3 p.m. and 4 p.m. the same day the working of the points was examined by platelayer Whittle, who states that they were in good working order. He did not examine the connections of the points as it was

not part of his duty to do so. Between 3.54 p.m. and the time of the accident six trains entered the loop, and the lever working the points was pulled over in each case and afterwards replaced in the frame, but as no train had occasion to set back over the points towards the dead end of the loop it is impossible to say precisely when the disconnection took place, but it must have happened after the points were examined by Whittle, between 3 p.m. and 4 p.m.

The duty of examining the connections to the points at Chew Moor, including the adjusting barrel in question, belongs to the signal fitters, and the usual man to do this was signal-fitter J. Blinstone, and the last time he examined them was on October 30th. He states that he then let the rodding out of the barrel about a quarter of an inch, and that he thinks there was about two inches of screw thread at the end of the rodding engaging in the barrel on that date.

On December 13th, the day before the mishap, Blinstone's duties were being taken by signal-fitter T. Winstanley, but he omitted to examine the adjusting barrel. He states he did not think it necessary to do so, as the points worked all right and fitted well against the rails on either side.

The points had also been inspected by signal-fitter J. Walker on the 27th November, who stated that he could not say what hold the rodding had in the adjusting barrel at the time, but thinks it was about two inches, and that the lock nuts were tight up against the barrel.

After the collision, before the derailed waggons were got on to the rails, the rodding between the adjusting crank on the far side of the line and the points was disconnected at the crank, and subsequently when foreman-platelayer Whittle and signal-fitter Walker had connected the rodding again at the crank it was found that the point switch was not tight against the stock rail. Whittle then looked about for the cause of this, and found that the point rod was out of the barrel, and the lock nut was not more than half an inch from the end of the rodding, showing that that must have been the maximum hold the rodding could have had in the barrel. He also examined the screw threads on the rodding and in the barrel, but found no signs of either thread being stripped.

Signal-fitter Walker also saw the adjusting barrel and rodding at the same time, and he states that there was no sign of the screw threads being stripped, and thinks the lock nut was about three-quarters of an inch from the end of the rodding.

When Walker and Whittle re-coupled the connections after the derailed waggons had been got on the line again they found it necessary to lengthen the rodding between the adjusting barrel and the adjusting crank by two inches in order to get a small hold of one and a half inches between the rodding and the barrel at each end of the latter; and subsequently when the work was made permanent it was found necessary to put in a new piece of rodding five inches longer than the old one in order to get a good hold of three inches between the rodding and the barrel at each end of the latter.

There are no signs of the down loop line having shifted at all, and so causing the distance between the adjusting crank on the far side of the lines and the trailing points to be increased, and so it appears that the rodding between the crank and the barrel must always have been too short, and that there had never been the proper amount of screw thread on the rodding engaging in the thread of the adjusting barrel. Under these circumstances I do not think it right to put all the blame on signal-fitter Winstanley, who should have examined the adjusting barrel the day previous to the collision, but who omitted to do so. I think it practically certain that there could have been hardly any screw thread engaging after the barrel was adjusted by signal-fitter Blinstone on October 30th, and who let the rod out of the barrel for a length of about a quarter of an inch on that day.

I think it would be an improvement to the adjusting barrels if the slits were increased in length up to the commencement of the screw threads at each end, as, unless the rodding is screwed an inch and a half into the barrel beyond the screw threads, or over four inches in all, a fitter has to judge by the amount of screw thread on the rodding showing outside the barrel as to what length of screw thread is engaging with the screw thread in the barrel, and if the actual length of thread on the rodding is not the usual amount, viz., six inches, he may be deceived.

I have, &c.,  
E. DRUITT,  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.

## APPENDIX.

## DAMAGE TO ROLLING STOCK.

Passenger engine, No. 671.--Both leading buffers and buffer plate damaged; engine main framing bent; smoke box slightly buckled and vacuum pipes broken.

Third bogie van.—Body moved and one headstock slightly damaged.

Bogie composite, No. 692.—Body moved.

Third bogie, No. 1,013.—Body moved.

Third bogie, No. 120.—Body moved.

Third bogie, No. 1,737.—Body moved.

Third-class coach, No. 1,523.—Body moved and one buffer rod bent.

## DAMAGE TO PERMANENT WAY.

Two switch blades and three rails slightly bent; seven chairs broken.

Printed copies of the above Report were sent to the Company on the 4th February, 1902,

## LIVERPOOL OVERHEAD ELECTRIC RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
February 22nd, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 24th December, 1901, the result of the enquiry held by me, in conjunction with Mr. Trotter, into the circumstances attending the disastrous fire which occurred on the evening of the 23rd December at Dingle Station, on the Liverpool Overhead Electric Railway, whereby six lives were lost.

The names of the victims were Messrs. Beadon and Bingham, passengers; Thomas Rendell, station foreman at Dingle; J. C. O'Brien, car cleaner; Robert Ashbee, motor man or driver; and Charles Maloney, guard; the four last being employed by the Company.

The fire commenced in the rear carriage of the 5 p.m. train from Seaforth Sands, due at Dingle at 5.32, but which was six minutes late, and which, owing to some defect in the rear motor, came to a stand about 80 yards outside Dingle Station. The fire, after spreading from carriage to carriage, finally attacked the station, which was entirely burnt out.

*Description.*

In order to convey a clear idea of this remarkable occurrence, it is necessary to give a brief description of the railway and of Dingle Station.

The Liverpool Overhead Railway was, as its name implies, originally carried entirely on a viaduct, constructed throughout of steel columns, steel girders, and steel flooring. It was opened for traffic in 1893, its length being then about 5 miles 71 chains.

Early in 1897 it was extended in an easterly direction from its eastern terminus at Herculaneum Station to Dingle, the extension being 1,144 yards in length, of which a length of about 300 yards is on viaduct, and the remainder in tunnel. It was originally intended that the railway should be continued still further eastward, but, up to the present, this has not been carried out, and the line terminates abruptly in the tunnel, at the extremity of which Dingle Station was built.

The tunnel, which is arched throughout, is 25 feet 6 inches wide and 19 feet high for a distance of 605 yards from its entrance. The width is then increased to 52 feet, and the height to 24 feet 6 inches, for a length of 163 yards, after which the tunnel resumes its normal section for a length of 41 yards, when it ends with a dead wall. In the widened part of the tunnel Dingle Station is placed. It may be remarked that the span over the station is unique, no tunnel arch of such magnitude having been previously constructed.

The station consists of an island platform 28 feet wide and 170 feet long, with lines on either side of it, the arrangement and signalling being such that each line can be used for the arrival or departure of trains. At the east end of the platform a flight of stairs leads to an inclined passage or subway about 160 feet long, communicating with the booking hall, which abuts on to the thoroughfare known as Park Road. The booking



hall has four double doors, each forming an opening 6 feet wide, facing the street. Three of these doors are said to have been open at the time of the fire.

At the west end of the platform there are cross-over roads between the up and down lines, near to which the signal-box is situated, while at the east end of the station there are sidings with a cross-over road between them. It often happens that a spare train is standing in these sidings, as was the case on the day of the disaster.

The platform, stairs, and passage were divided longitudinally by a fence or barrier for the purpose of separating outgoing from incoming passengers, and facilitating the station work, and small shelters were placed at intervals along the platform. Hydrants with sufficient lengths of hose were fixed at each end of the platform, and some chemical fire extinguishers were kept in the signal-box. The station was lighted by electricity, taken from the main current, and incandescent gas lamps were also provided for use in case the electric supply failed. The gas lamps on the platform were probably turned down, but those in the booking hall were burning brightly.

I attach a plan and longitudinal section of the station, which make the arrangements quite clear.

The railway is worked by means of electricity on the (500 volt) continuous current system, the electrical conductor being placed in the middle of each track.

The trains consist of two or three bogie carriages. In the case of the two-coach trains, each coach carries a motor; in the case of the three-coach trains the first and third coaches have motors. In all cases the motors are placed, one on the leading axle, and the other on the trailing axle of each train. There is a driver's compartment at each end of every train, and both motors can be controlled separately or simultaneously from either end. The trains can therefore travel in either direction without any re-arrangement of the carriages. The driver invariably occupies the compartment at the leading end of the train, and the guard that at the other end.

The signalling of the line is automatic.

The following general description of the motors has been supplied to me by Mr. Cottrell, the General Manager of the line:—

"The armature is wound direct on the axle. The magnets are maintained in their position round the armature by suitable yoke bearings direct on the axle.

"The motors are balanced and attached to the bogie frames by suitable springs and india rubber cushions, and are entirely detached from the body of the coach under-frames.

"The clearance between the topside of the motor magnet ferrule and the longitudinal timbers of the under-frame is 4 inches, and the clearance between the floor-boards and the top of the magnet ferrule is  $11\frac{1}{4}$  inches.

"Each train has two motors, one at each end. The output of each motor is 70 E. H. P."

Motors of this type have been in use since the line was opened in 1893, and are now somewhat out of date. They are not iron cased.

At 5.38 p.m., as the train due to reach Dingle at 5.32 p.m., but which was 6 minutes late, was approaching this station, it came to a stand in the tunnel about 80 yards from the platform, owing to the failure of the rear motor. Mr. Trotter is of opinion (*see* his Report in Appendix No. I.) that the insulation of a cable connected with the rear motor had broken down, and that "an electric arc was started," causing a rush of current, which opened the circuit breaker, and stopped the train. The evidence shows that the driver reset the circuit breaker, and made several attempts to restart the train, but without success. Each time the current was switched on a vivid flash was produced, which ended in setting fire to the woodwork of the coach.

A gale of wind was blowing from the west, that is from the mouth of the tunnel towards the station, which caused the fire to spread from carriage to carriage until the whole train was enveloped in flames. It is estimated that the train was well alight about 12 minutes after the stoppage.

There were 29 passengers, who, when the train first came to a stand, were urged by the driver and guard to keep their seats, as there was no danger. The driver and guard seem to have made some futile attempts to put out the fire, but it soon became apparent that the fire had obtained the mastery, and the passengers found it necessary to alight. They had only 80 yards to walk in order to reach the station, and the majority of them appear to have gone to their homes without any delay, and to have suffered no ill effects from the fire. It appears, however, from the evidence that a few remained behind, presumably to watch the progress of the conflagration and the result of the efforts to control it.



Station-foreman Rendell and car-cleaner O'Brien, who were on duty in the station, were soon called to the spot, and with the driver and guard did what they could in the first instance to control the fire, and when this was seen to be hopeless to direct the passengers to the exit from the station. About ten minutes after the outbreak Rendell telephoned to the booking clerk in the office upstairs to send a telephonic message over the National Telephone Company's wires to the generating station to cut off the current, while he himself at the same time sent a similar message to the works over the private wire belonging to the Railway Company. Both messages seem to have reached the Company's works at the same moment. The current was at once cut off, but it was too late to be of any service so far as the fire was concerned, and the only effect of this measure was to plunge the station into darkness.

The fire caused dense volumes of pungent smoke to arise from the ill-fated train, due no doubt partly to the insulating material in and around the electrical machinery and cables, and partly to the burning woodwork. This was driven by the wind along the under side of the arched roof of the station into the staircase, passage (or subway), and booking hall. As the flames increased so did the smoke, which was doubtless accompanied by heated gases—some inflammable, some suffocating—and gradually the entire tunnel became filled with the deadly fumes.

At first, I imagine, the accumulation of smoke above their heads, and the fact that their retreat was being cut off, escaped the notice of the men in the tunnel, intent as they were upon the efforts to save the train.

The passengers who first left the place probably experienced little inconvenience from the smoke and heat, but when those who had lingered realised their position, escape by the stairs had become almost impossible, and the danger was intensified by the darkness. It is not possible to say exactly what happened, but some idea of the situation may be gathered from the evidence of signalman Owen, boy Gough, and Mr. Stewart, who were the last persons to leave the station alive, though none of these can give any very clear idea of how he escaped, as each of them lost consciousness either before, or immediately after, reaching the booking hall. It may be remarked that Gough seems to have behaved with much intelligence, and to have rendered valuable assistance to the passengers. What happened to the unfortunate men who remained below can only be conjectured.

Station-foreman Rendell seems to have guided the two passengers, Messrs. Bingham and Beadon, to the foot of an air shaft which exists in the short tunnel east of the station, where doubtless they hoped to find safety; but the shaft had become a flue up which the smoke and fumes were being drawn. There were no means available of climbing the shaft, and if there had been it is doubtful whether a human being could have lived through the smoke and heat that filled it. The bodies of these men were subsequently found at the foot of the shaft, where they had perished of suffocation.

Guard Maloney and driver Ashbee remained alongside the train too long, and, judging by the position in which Ashbee was found, he must have been overcome by the fumes before he made any attempt to escape. Ashbee's body was, I understand, a good deal burnt. Maloney reached the end of the platform, and then succumbed. Car-cleaner O'Brien, who seems to have made himself useful at first, and who, when matters became critical, was conducted to the foot of the staircase by boy Gough, was unable to escape by that route, and crawled back to the hydrant at the west end of the platform, where he perished.

One of the most remarkable features of the case was the manner in which the fire spread. Although the train was separated by a considerable interval from the station, and although there was no woodwork at all in its immediate vicinity, the heat and gases evolved were such that some sleepers stored in the dead-end siding near the west end of the down platform 24 feet distant, the signal-box 55 yards distant, the platform 80 yards distant, and the spare train in the siding at the east end of the station 155 yards distant, were successively attacked. The station tunnel became a fiery furnace, and though the fire brigade were called to the spot within half an hour of the outbreak little could be done, as the smoke made it impossible to reach the tunnel by means of the subway and staircase. It is not possible to say the exact time when the flames reached the sleepers in the siding, but judging from signalman Owen's and boy Gough's evidence this can hardly have occurred till after they had left the station. It is true that Mr. Stewart is under the impression that the sleepers were on fire before he escaped, and the Company has been severely criticised in the public press for allowing sleepers to remain in the position referred to. It is easy to be wise after the event, but I do not consider that any blame can be fairly laid upon the Company for storing some sleepers in a corner of a wide tunnel such as this for the purpose of repairing and maintaining the permanent way in and near

the station. In future, however, no timber of any sort will be allowed to remain in the tunnel, except the sleepers actually laid in the permanent way.

### *Conclusion.*

The cause of the fire is, as already stated, explained in Mr. Trotter's report in Appendix I. It was due to a defect in one of the motors, and would have been productive of no serious danger if driver Ashbee had only acted with a moderate degree of prudence. When this man discovered that his rear motor had failed, his duty was to disconnect the rear motor by means of the plug provided for the purpose in his compartment. He should then have run into the station with one motor, as is often done. For some reason or other, which cannot be conjectured, Ashbee, instead of disconnecting the defective motor, and in disregard of the warning of the guard, made repeated efforts to bring it into use, the result being that before long the woodwork of the rear carriage was ignited by the flashes produced by the electric arc when the current was switched on to the defective motor. While Ashbee was so employed, both he and the guard appear to have told the passengers to keep their seats, as there was no danger.

Both these men and station-foreman Rendell seem to have exhibited a lamentable lack of judgment in this respect. It is impossible not to feel that the sacrifice of life on this occasion was unnecessary and might have been easily avoided. If the passengers had been hurried out of the train, as soon as it became evident that it had broken down, and if none of them had been permitted to loiter about the station, their safety would have been secured. And if the train men and station foreman, who deserve credit for their efforts to prevent the fire from spreading, had only realised sooner that the train was doomed, they too had ample time to escape. The cutting off of the current did no good, but by putting the place in darkness, rather increased the difficulties and danger of the situation.

The circumstances connected with this fatal occurrence direct attention to the advisability of removing all woodwork as far as possible from the neighbourhood of the electric machinery upon railway carriages, and of adopting for the purposes of insulation some material which is unflammable and smokeless. This subject is dealt with in Mr. Trotter's recommendations, which will be found in Appendix I., and with which I entirely agree. It is to be hoped that the engineers connected with electrical railways will act upon Mr. Trotter's valuable suggestions.

Stations situated in tunnels on electric railways should have as little woodwork about them as possible. The platforms should be of stone or concrete, and buildings such as signal-boxes of brick or iron. I am glad to be able to report that the Liverpool Overhead Railway Company have adopted this principle in reconstructing Dingle Station, there being now practically no woodwork at all about the place.

I have, &c.,

H. A. YORKE,

*Lieut.-Col., R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

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## APPENDIX I.

### LIVERPOOL OVERHEAD RAILWAY.—DINGLE FIRE.

The evidence goes to show that the insulated covering of a cable connected with the motor on the after part of the train had become deteriorated. The wet weather may have contributed to the defect, and, as the train was late, the driver may have forced the speed. The insulation broke down, an electric arc was started, the rush of current opened the automatic circuit-breaker, and stopped the train. The driver reset the circuit breakers and tried to start several times, and the arc broke out each time, causing the flashes. It is not unlikely that the driver held up the circuit-breaker, for the lights "went low," showing that a very heavy current was being taken. The arc, due to this heavy current, or, perhaps, the earlier flashes, set fire to the woodwork of the coach, and the strong wind caused the fire gradually to spread.

The opening of a circuit-breaker is a common occurrence; the driver should have disconnected the rear motor, and should have run in with one motor. In cases of break-down of one motor, the journey is often thus completed. Motors and the connecting cables on electric railways and tramways often break down through the failure of the insulation. The possibility of a panic from smoke arising from such failures on tunnel railways has been foreseen, and must be guarded against, but eight years' experience on this railway has shown that such failures, even when resulting in a "burn out" of a motor, have never before set fire to any part of the train. The risk of fire involved in the present railway, on which there is but one short terminal tunnel, was less than on ordinary steam railways.

This railway is one of the pioneer lines, on which the earliest American and other electric railways were afterwards modelled. The motors are identical in pattern with those first fitted in 1893, but the parts have been gradually replaced as they wore out. The motors are overhauled about once for every 30,000 miles run. The armature of the motor, to which the accident is attributed, was re-wound in February, 1896. Since then it has been overhauled and repaired, if necessary, 11 times, and since February, 1896, has run 153,571 miles. The magnets were re-wound in September, 1899, and were specially overhauled in December last. A train had been fitted experimentally with modern iron-clad motors, adapted for higher speeds than at present, but the absence of iron casings in the present instance is not an essential matter.

#### RECOMMENDATIONS.

Flexible cables covered with india rubber or other combustible material are used unnecessarily in many cases in electrical work. They are a survival from the earliest branch of electrical industry, namely, telegraph work. They are used from habit and for convenience. This mode of construction does not commend itself to mechanical engineers. Combustible insulating materials should not be used on the main current conductors of electric trains, particularly in tunnel railways. These conductors should be rigid, and might be bare, or enamelled, or protected by incombustible ferrules in iron pipes. Flexibility should be restricted to necessary points, and not used for convenience in arranging the conductors. Flexibility should be provided by pinned hinge or knuckle joints shunted by bare flexible links of wire gauze, or cable braided with wire, or by some other sound mechanical mode of construction.

Little or no woodwork should be used in the construction of electric locomotives, or of the driver's cabs of motor coaches, and in the latter, the resistances and the controlled switches should be placed, if possible, in front of and outside the cab.

ALEX. P. TROTTER.

January 10th.

#### APPENDIX II.

##### *Evidence.*

*William Owen* states: I am a signalman in the employ of the Liverpool Overhead Railway Company. I have been in the Company's service for upwards of six years. For some time past I have been in charge of the signal-box at the Dingle Station. On the evening of Monday, the 23rd of December, I was on duty in my box, having come on duty at 2 o'clock. I had the road set for the down platform for the train which was due to leave Seaforth Sands at 5 p.m. and to arrive at Dingle Station at 5.32. I noticed the train coming up the tunnel. All went well until the train was within about 80 yards or so of the platform, when it suddenly drew up. The signals were off, and there was no reason why it should not have come straight in, so far as I was concerned. I, therefore, concluded that something was wrong. The train was about two minutes late. The first thing I saw after the train stopped was the driver, Ashbee, "switch in" for the purpose of re-starting the train. As soon as he did this there was a flare-up at the rear of the train. It was an unusually big flare-up. When he saw this, Ashbee evidently "switched out" again. After this he again "switched in," and again there was a big flare-up; and Maloney, the guard of the train, shouted out from the rear of the train, "You will have us burnt up if you go on like that." As above stated, the train should, in the ordinary course, have come in on the down platform. This would have necessitated the train crossing the points at the entrance to the station; and about this time Ashbee shouted to me, "Let me go in on the up instead of the down." This would give him a straight run in and save the curve. I at once altered the road, so as to bring the train in on the up line, but it never moved. I then saw Maloney come forward to the front of the train, and heard him say to Ashbee, "Why do you not try one motor?" Ashbee's answer was, "I know my work." I cannot say whether he did try one motor or not. It was either shortly before or after this that Maloney said to Ashbee, "Switch in again, and I will watch behind." Ashbee then switched in, and there was at once another

flare-up behind, which continued, and it seemed to me that the woodwork of the rear coach—there were three constituting the train—had caught fire. Maloney shouted to me to tell them at the generating station to cut off the current. The station foreman—Rendell—was standing on the station platform, and heard the request. He accordingly hurried up to the platform telephone and, I believe, telephoned to the booking-office on the surface to request those in charge at the generating station to cut off the current. I believe that this message was duly conveyed, as the current was certainly cut off. I do not know what time that was. I should say that from the time of the first flash till the current was cut off would be four or five minutes. Before this I telephoned to the Herculanum Station. I said, "We have a train on fire, and you will have to work the traffic from Herculanum." I also told them to send up the platelayers. I also told them that they would have to move the train which I saw from its light was standing at the Herculanum advance signal. I afterwards tried to get through to Herculanum again, but could not do so. I also tried the bells, but they would not answer. I knew from this that the connection was cut. In the meantime I saw Ashbee leave his box, after switching off, and go to the rear of the train. I never saw him again. The next thing I saw was Maloney leaving the train and hurrying past my box to the station platform. He returned with a bucket of water. As he was passing my box I went down the steps and handed him a chemical fire-extinguisher, of which there are several about the station. He went off towards the train, and I never saw him again. I heard him, some little time after this, shout for the current to be turned off. I cannot say when the current was actually turned off, as I had two gas-lights in my box. As Maloney was returning to the train I saw two passengers coming along the line. They got on to the slope of the platform, and stood for some little time watching the train burn. As the fire had now become a big blaze I sent G. Gough, who is train booker, and the deceased, O'Brien (who

was a lamp cleaner), with the only two lamps I had in my box to light the passengers over the cross-over road. As O'Brien had come to me for a lamp I thought he must have been sent by Rendell. They went, and I saw them do all they could to assist the passengers. O'Brien came back afterwards to get his lamp refilled as he had fallen over the rails and upset his lamp. Shortly after this I left my box and went forward to the train to see if I could be of assistance. I got as far as the front coach. The heat and the smoke were intense, and I could not get any further forward. The second coach was then beginning to catch fire. That was the middle coach. The rear coach was in full blaze. The front coach at that time was not touched. Some of the passengers were still getting out of the train, and all had got out to the best of my belief before I left. I helped two over the cross-over road and left them by the signal box, telling them to keep to the right. They had only then to go up the slope on to the platform. I have every reason to believe they reached the surface safely. I then went back to my signal box, and as I was standing on the top of the steps leading to it I saw Rendell coming along the four-foot way on the up side with a lamp in his hand lighting a passenger. They were walking abreast—the passenger had on a top coat and a bowler hat—and I think from his description it must have been Mr. Bingham. As they passed my box I shouted to Rendell, "What about me?" As he was head man at the station I wanted his instructions before leaving my post. He did not, however, give me any answer. Some little time before this I saw O'Brien at the tap by my box getting a drink, and I told him to go upstairs or he would be suffocated. He left and went up the down platform as if he was going out. At that time the smoke was so dense I could see no distance. Some three minutes or so after I saw Rendell and the passenger go past, I left my box and groped my way along the platform. Before starting I took the precaution of soaking my handkerchief in water, and putting it in my mouth. I believe this saved me. I am sure that when I left my box the pile of sleepers had not caught fire, as the fumes from them must have suffocated me. I heard, however, part of the train falling to pieces, and the air from the Westinghouse brakes go—I mean I heard it escaping. I worked my way along the platform, feeling the seats, &c., with my hands to guide me, and at last reached the foot of the staircase. Up to that time I had never seen or heard anyone since I left my box. When I reached the staircase I heard someone calling for help. The cries seemed to come from somewhere behind the staircase, by 17 siding, near the air shaft. I could, however, do nothing as I was myself by this time half suffocated. I cannot recollect how I got up the stairs or passage between the booking office and the top of the stairs, but I remember reaching the street, and then I lost all consciousness. I understand that I was carried over to Porter's yard, and thence in the ambulance to the Southern Hospital. Although I am sure that the actual flames were never near me both my ears were scorched with the heat. That is why I am bandaged. My ears are blistered. I am sure that if Rendell and the passenger had got on to the platform instead of going along the four-foot they would have been saved, as they had quite three minutes' start of me. I should say that an awful wind had been blowing up the tunnel all the afternoon, and it was this which made the fire spread as it did. My only idea of the time when I left my box would be from the time the train came up and stopped

in the tunnel, and I cannot say exactly what that time was. The train was not booked, because it never arrived. The train reached Herculanum about 5.33, and it would take about four minutes to run through the tunnel. I did not look at the clock. It must have been 5.37 or 5.38. When the driver switched on every time there was this flash in the rear—always in the rear—not in the front. I have not had a similar experience before. The driver did not communicate to me what was wrong. I did not see if he made any attempt to disconnect by putting the plug in the box; all he did was to reverse the switch, putting it in the centre. Ashbee, when I last saw him, went to the rear of the train. He was found about 12 feet from the front of his train. I am quite certain that I heard this conversation going on between the driver and the conductor. I saw two passengers stop on the platform, for the purpose of watching the fire, at the bottom of the staircase. When I left my box they had gone. I found my way out as I did because it is the way I always go up for home when I leave duty. When I got round the corner I said to myself, I shall be safe now for the platform. First I knocked against the starting signal on the north cross-over, and when I went further I got to the waiting sheds, and groped along them. They are covered sheds. I got along, and after knocking myself four or five times I got to the bottom of the staircase, and got hold of the bannister, which was wringing wet. I then heard somebody cry for help, and I took the handkerchief out and gasped for breath, but I could see nobody, and as I felt the smoke I put my handkerchief back in my mouth and got up. I told the passengers who were passing my box to keep to the right, because if they went to the left they would get on the four-foot. There was then no fire at all on the platform, nor were the sleepers on fire then, or I could not have stopped there. There was only smoke and heat; and the higher I got up the staircase the more heat I got. That rather surprised me, and I was very glad when I got to the top. I am confident that if those passengers I last saw there had kept on the platform they would have been saved. The last persons to pass me were Rendell and the gentleman in the round hat. If they had got on to the platform they would have been safe, but as it was they got on to the four-foot, and groped about, and got into the No. 17 siding. They were walking side by side when I saw them, and they had a good three minutes. If they once missed the front of the staircase they would go wrong.

*George Gough* said: I am train booker in the employ of the Company, and was on duty on the afternoon of Monday, the 23rd of December. It was my duty to stand in the signal box with Owen and book the trains as they passed the cabin in and out. I was in the cabin when the 5 o'clock train ex Seaforth, due at 5.32, was coming up the Dingle tunnel. It was about three minutes late. I was standing at the window waiting to catch the numbers of the coaches, and I saw the train suddenly stop and the lights in the train go very low. A short time after the train came to a standstill, I heard the guard, Maloney, shouting out for hand lamps. The electric light in the station had then gone out, and all was dark. Owen handed me two lamps. One of these I gave to O'Brien, and we went down to the train. There was only one coach alight then—the rear one. Even then it was a big blaze. The passengers were all coming out. One passenger refused the hand lamp which I offered him, as

he said he could find his own way without it. I heard Rendell twice tell the passengers to make their way upstairs as soon as ever they could, but several of them stood by on No. 12 siding by the pile of sleepers. They didn't appear to pay any attention to what Rendell said. If they had all gone off when I first went down they would all have been saved. I lighted three passengers from the train to the bottom of the staircase. I then returned to the train. On my way I picked three fire extinguishers up and handed them to Maloney, who, with Ashbee, was doing all he could to put the fire out. I then guided five more passengers from the train to the bottom of the staircase. I left O'Brien at the top by the signal box as he couldn't work any more; and I gave his lamp to one of the passengers. After seeing these five passengers start up the staircase I returned for O'Brien. I found him still by the tap. He was partially unconscious, and I had to shake him. I led him to the staircase and hoped he would make his way up. I heard someone shouting on the permanent way on the up line, about opposite the signal box. I crawled back along the platform on my hands and knees and found a passenger at the point indicated. He was moaning. I had previously wetted my coat and put it over my head. I led him to the platform and about half way along it, when he told me to leave him, as he couldn't go any further. He handed me a note to deliver. I unfortunately lost this. He had a light coat on and spectacles. I struggled along the platform, but fell off it on to the permanent way. At this time I heard Owen running along the platform. I knew it was him as I recognised his step. I eventually reached the slope on to the platform. I found my way up the staircase and passage into the booking hall. At the entrance I was met by driver James, and I do not remember anything further till I found myself in the hospital. I was not burnt at all, nor were my clothes singed. I had got under the tap and soaked all my clothes. I can account for O'Brien's movements up to the time I left him at the bottom of the staircase, and I do not think that he can have taken shelter in the foreman's hut. I have no idea how he came to wander down to the end of the platform where he was found. I left him at the foot of the stairs—I am sure of that—on the down side. I went the way the passengers go up—the proper way out. After that I went back on the up side, and tumbled into the four-foot, and then crawled up the slope on my hands and knees and got up again. I could see nothing before me at that time. Our gas in the signal box kept alight. The electric light in the station had gone out. I could not say how long that was after the train had come to a stand. The gas light was burning through the fog. There is no doubt it was there. I just heard the conversation between the driver and the guard. The guard shouted to the driver. I think it was to ask the signalman to let him come straight in on the straight run. I then heard a shout from the driver to the signalman. I saw flashes come from the train at the rear end after it came to a stand. I saw the driver come out of his box and examine his train. After the shouting we went with lamps to them. The passengers were coming out then, and the driver stood in the siding watching his train. I should say there were 15 to 18 passengers. Some of them went away at once, and some of them stayed behind to look at the train burning. Those I let out would be some of them. Those who went away at once did not need any assistance. I got away after Owen did. I was the last out of the station. The first set of passengers walked straight away

from the train; the others remained, but bye-and-bye began to move. I should say fully ten minutes elapsed between the two sets moving away. The last lot stood there watching in the siding, and the foreman, Rendell, remarked to them that if they valued their lives they should go, but they took no further notice of him. He cautioned them and told them to go. They had got off the platform on to No. 12 siding by the sleepers. They were standing alongside the train and watching it—some were right opposite the second smoker. When those passengers began to move out the middle carriage was well on fire. I should think there were five or six passengers there then.

*William Shuttleworth* said: I am booking clerk at the Dingle Station, Liverpool Overhead Railway. On the 23rd of December I was on duty in the evening. The first thing that drew my attention to anything being wrong down below was the foreman ringing me up to communicate with the generating station to turn off the current at once. He telephoned from the platform to the booking office to ring up the generating station on the Exchange wires, and tell them to cut the current off. We have a telephone from the booking office to the platform, and from the booking office to the Exchange, and there is a line wire as well direct to the generating station. We could also have telephoned to the generating station from the platform, and Rendell could have done it himself if he had wished. The generating station admitted receiving the other message. It is hard to say what time it was exactly that I got the message from Rendell. I did not look at the time. I did not know that anything was wrong until five minutes after, and then he gave me a message to fetch the Chief Inspector, Fox—he is chief inspector of the uniform staff—as there was a train on fire in the tunnel. I delivered the message. After coming down from Inspector Fox's house—he lives on the premises, over the station—he came down, and I met him in the hall. I went to the booking office again. I could not say what became of Fox. The smoke was then becoming thick and I left the booking office. At that time none of the passengers had come upstairs. I then went into the street and met a policeman, who asked me where the smoke was coming from, and I explained. I then saw some passengers come up. I could not say what the time was then. I remember some passengers getting caught in the passage where the bicycles are kept. I heard them shouting out. I ran over to Porter's, the undertakers, right opposite the station, and told them to get anything they could to smash in the doors and windows. I could not help them to climb over the barrier between the passage and the booking hall. I had been in there twice and had had to come out again, the smoke was so thick. All the station doors, except the one leading into the bicycle passage, were open. There are four doors altogether, and three were open, each six feet wide. I say that when I went back to the booking hall the smoke was so dense that I had to come out again. We then smashed in the windows in the passage, and two of the passengers were lifted out at the side, through the windows. Which way the others were got out I could not say. The barrier at that point is about up to my chest, say 4 feet 6 inches. It was very black smoke, and the passengers were excited, I think. The electric lights had gone out upstairs before that, but we still had the gas jets all alight. It was the smoke which would prevent those in the passage with the

closed door in front of them from seeing the other three doors. You could not see the wall in front of you. The bulk of the electric lights would go out about 5.48. That was the time the generating station switched off the current. If any of the passengers in that passage had thought of getting over that barrier they could easily have done so. There were some bicycle stalls there which would have given them help, and once over there was nothing to prevent them getting out at the other doors. They could have found their way out, but nobody could see them from the street. There was no bicycle obstacle in the way. The gas lights were not out; they are always lit, but they were practically useless because of the dense smoke. That would apply to the platform too. They are incandescent lights. We generally turn them up about four or five o'clock in the evening, and they are all lighted up just by the pull of a chain down. I am sure that they were burning. They were put out about 10 o'clock—at least it was then I told the firemen where the meter was. They were not put out before the firemen came and put them out. They were all alight in the booking office, except one, which had gone out with the draught, I suppose. I saw some of the passengers who came by this train simply walk out of the station. All was clear then. I did not know that there was anything wrong, and they did not say anything. About eight came up then. That was before I had any communication from below. There was no ticket collecting; the second-class have no tickets at all and the first-class tickets are collected at the Herculanum, so that there would be no delay in collecting tickets at the Dingle at all. It would not, therefore, be my duty to watch the passengers going out, but I happened to see them, with the booking office door open. When I was giving the message from Rendell by the telephone a passenger came up whom I had booked. There were only two to go out by that train, and one came up for his fare back, as he could not wait. I was then on the telephone. I did not see the other then, but I saw him again on Christmas morning at the station. As to the man who came back for his fare, I could not attend to him then as I was on the telephone, and he went away. I don't know where he went to. Between Dingle Station and the generating station there are eight stations. The generating station is between the Nelson and Huskisson Stations.

*Inspector Lenthall* said: I am a traffic inspector on the Overhead Railway. On the night in question I was going to the Dingle, with the idea of getting into the 6.20 train, but when I got to the station I found volumes of smoke coming out there. I inquired if there were any passengers down below, and they said they thought there were. I then went to the side leading to the bicycle house. A window was broken there, and I endeavoured to get through, but the fumes drove me back again. There was a passenger then came up from the inside, and two of the undertaker's men from the place opposite dragged the man through the window. I found that I could be of no use there, so I went round to the Herculanum, and walked up the tunnel, and met the night inspector who was on duty. He told me I should not go any further, as I could not be of any use up there, as it was like a furnace; so I came back with him to Dingle to see if I could be of any benefit there. I made myself known to Superintendent Thomas, of the Fire Brigade, and said that if I could be of any use to him I should be only too pleased, and I explained to him how and where the train was on fire, and how he could get at it by running a hose up

the tunnel. He said "You had better come round with me to the other end." Then I took him round and up the tunnel, and the hose pipe was run up to the train from the Herculanum. That was how the fire was first subdued from that end. When I first got to the Dingle it was about 6.18 p.m. I do not know at what time the message was sent to cut off the current.

*Richard Orford* said:—I am station foreman at the Herculanum Dock Station. The train in question arrived late, and I sent it on to the Dingle, and I was about to send on the train following, when I heard a telephone message coming through from the Dingle on the down platform. I said to the man there "What is the matter at the Dingle?" and he said "There is something wrong with Ashbee's train—the latter end of it is on fire, or something—so the signalman says." That was Owen who passed the word down to the signalman at the Herculanum. I went across to the telephone to speak to Rendell, the deceased station foreman—he was on the telephone trying to get to the generating station. I asked "What is the matter, Tommy," and he said "Ashbee's train is on fire in the tunnel, and I want to get the generating station to take the current off." I said "I will take off my switches, and get the traffic going from Herculanum." The current was then taken off immediately and I then went to take my switches out, which of course disconnected us with the Dingle. I telephoned then to the generating station to put the current on again, and they did so, and we worked the traffic from Herculanum. As near as possible that was ten minutes to six. That was when I heard this conversation between Rendell and the generating station on the up line wire. We could telephone direct without stopping at the intermediate stations. There is a code for each station, which of course would not be interrupted as they would know that it was an urgent message to the generating station. The train was booked to arrive at 5.32 and it was six minutes late. It was an ordinary train stopping at all stations. The run from our station to the Dingle takes four minutes. That is the booked time. I saw the train as it passed through our station. I collect the tickets, and as the train was a bit late the deceased driver said "Look as quick as you can, I am a bit late." Maloney, the guard, collected the tickets in the first non-smoker, and I collected the tickets in the first smoker; and I think there were about six tickets in the first smoker. I particularly remember that because there was a friend of mine in the coach—a Mr. Cornish. The first smoker is in the centre coach, in the three-coach trains. There are only two classes—first and second. The only thing I noticed in connection with the train was that the insulation was smelling; and often when the train is late they do smell, through over-heating of the resistance coil or something of that kind. It was in the rear of the train that I smelled it. It had been wet all day. Ashbee did not complain, but Maloney said "She is humming, isn't she?" That meant that she was smelling. That is merely a by-word amongst the employees when the train smells a little. That is not a frequent occurrence. It is the name that has been in use ever since the line was started—a by-word. I should say that there were about nine first and twenty second-class passengers in the train as far as I recollect when she left for the Dingle. A great number got out at Herculanum. The five o'clock train is one of the heaviest trains for workmen; but the majority get out at Brunswick, Toxteth, and Herculanum.



*Charles Cunliffe* said: I am the foreman driver. I have to see the drivers start work at the Seaforth Station first thing in the morning at 4.30. Four of them start duty at the south end, but I see them when they come down. I see every driver whilst I am on duty, to see if they are fit for their work. I am on the early shift, from 4.30 a.m. to 1.30 p.m., so that I was not on duty on Monday evening. I saw Ashbee come on duty at 1.15, and take his train at 1.30. I did not see him again. He was in proper condition for his work, and a steady man. I do not know that I ever saw him the worse for drink. He was a very good driver. I have had no complaints to make against him. He never made any mistakes in handling his train. I have nothing to do with the guards. I did not notice Maloney in particular. As to the trains and motors, if a driver makes a report to me I examine them, and if I think they are not fit to run I send them out of the service. I did not get any report whatever about the motor in question. Each driver is provided with a book in which to make reports on the behaviour of the motors, or other matters. I have nothing to do with the putting together of the motors. I am not an electrician. I saw the train when it went out at 1.30. I did not see the train again, of course, as I went off duty. If a driver reports to me that a train has something the matter with it, I look into it, and if necessary have it exchanged. I am satisfied that this train was in proper condition when I was on duty that day. I have never had any complaint about it on previous occasions. It only came out of the shed that morning after being overhauled. It went into the shed on the Saturday to be overhauled. It was the ordinary overhaul; only for the brakes to be put in proper condition and adjusted.

*George Jackson* said: I am coach lifter in the Company's employ. That means lifting the coaches, and doing general repairs to them. I have to do with the fixing of new, or the repairing of old motors. The motor in question was in working order when it went out of the shed. It went out on Monday morning about 8.48. I do not remember whether it underwent some extensive repairs about two months ago. I daresay it may have been under another coach. I could not say how long it had been under that coach. As far as I know it was in proper working order on Monday morning. No complaint had been made on Saturday about the train, except that it was running slow—losing time. That would be due to the brakes, and that is what it went into the shed for—and the brakes were adjusted. I am not aware that any complaint was made on Saturday about the motors that they were "humming." On that report given to me I adjusted the brakes, and left them in working order. If I had heard anything—any complaint—I would not have let the train go out on Monday morning. A little "humming" would not be regarded as a great matter. That would not prevent my sending the train out. They often make a bit of a "hum" on account of the friction of the brushes. The same driver does not always stick to the same train. Ordinarily, the same driver keeps to the same train till dinner-time, and then another man takes the train from him. I have not heard any complaint about that train since the motor was repaired or renewed some months back.

*Alfred Ingram* states:—I am motor and carriage superintendent in the service of the Company. I have been in its service ever since the opening of the railway. I have before me the history of the train, consisting of coaches Nos. 32, 5 and 35,

from the date of its building and delivery to us down to the 23rd December last, when it was burnt. Our original trains consisted of two coaches, but this one was converted in 1897 into a three-coach train. It was delivered to us by the makers in 1894, and then consisted of two motor coaches. In 1897 we introduced a third coach between the two motor coaches, and since then those three coaches have always been worked together. These coaches, including the controllers, bogies, &c. (but not including the motors), have been overhauled 14 times since they were delivered to us, and have been thoroughly repaired and varnished three times. The last time they were overhauled was between the 27th May and the 5th July, 1901, when they were in the carriage shed. I should say that every night the trains are examined to see that all is in order. I find that the total mileage of these coaches since they were delivered was 202,681 miles. The armatures and field magnets constituting the motors are interchangeable, and those which were under the ill-fated train at the time of its destruction had previously been under several other coaches. I have before me the history of the motors under both the front and rear coaches.

(1) *South Motor* (i.e., the one which was at the front of the train, and to which the accident is not attributed).

*The Armature* was re-wound and went for traffic on the 17th March, 1900. Since then its mileage had been 26,911 miles.

*The Field Magnets* were re-wound in March, 1897. In November, 1899, they were repaired, and three layers taken off and replaced.

(2) *North Motor* (i.e., the one at the rear of the train, and to which the accident is attributed).

*The Armature* was re-wound in February, 1896. From that date to the day of the accident this armature had been overhauled, and, when necessary, repaired 11 times. The last time this armature was under special observation was between the 26th November and the 10th December last, when it was in the repairing shed. Since February, 1896, the mileage of this armature had been 153,571 miles. During this period, however, it had, as above stated, been overhauled 11 times.

*The Field Magnets* were re-wound in September, 1899, and were also specially overhauled between the 26th November and the 10th December last.

I last saw the north motor out from under the train between these dates. I have a distinct recollection of it, as it stood during that time before my office. Under my directions the outer covering of the field magnets was stripped off and replaced. When this had been done I inspected it and found the motor was in good running order. The last time I saw both motors under the train was on the morning of Saturday, the 21st December last, when I walked round and examined the train. It was reported to me that the brakes were tight, but no other complaint was made about the train. I gave instructions to George Jackson, the Company's coach-lifter, to have the brakes let out and adjusted. This was done. The train again went into traffic on the morning of Monday, the 23rd December last, the day of the accident. From the 10th December last, when the train was put into traffic again, after the north motor had been overhauled, down to the

accident, no complaints were made regarding the electric mechanism of the train. I produce the foreman driver's reports for this period showing this to be the case. I find that, according to our experience, the average mileage of an armature has been 30,516 miles, but we have had an armature which has done as many as 180,000 miles. The average mileage of a field magnet I find to have been 139,478 miles. We have altogether 77 motors at one time or another in use. We overhaul the motors in their turn whether they appear to want it or not. The motors in this case had not escaped their turn. They had been examined at the usual times. What draws our attention to the necessity for more serious repairs, such as re-winding, is an armature burning out. Unless we have a special report from a driver the trains are taken in turn. According to my experience we have an armature burning out about once a fortnight, and a field magnet about every nine or ten weeks. This is not a matter of any consequence, and simply involves the re-winding of the armature or field magnets, as the case may be. We keep a staff of men for this purpose. This burning out arises from various causes, such as rain, sleet, or snow blowing under the train on to the motor, various parts of the motor being exposed, &c. There was a great deal of wind and rain on the afternoon of the 23rd December last. We have never before had a case of a fire setting alight the body of a carriage, arising from the burning out of an armature or field magnet. We had a fire in July, 1899, whilst I was away on my holidays, but this was caused by the resistance wires, and had nothing to do with the motor. Also a small one in a driver's cab during the first year of our running, which arose from a similar cause, viz., the resistance wires. These we have made a practice of covering, wherever exposed, with asbestos. The fire in the present case cannot, in my opinion have arisen from the resistance wires.

*Stephen B. Cottrell* states: I am the general manager and engineer of the Liverpool Overhead Railway. When, as the boy told us, the lights went low there must have been a pretty short circuit. Our trains are supplied with automatic circuit-breakers. They are set to go at about 160. They do frequently go from overloading; one may go half-a-dozen times on a journey with an extra load of passengers on a bad road. I should think it probable that when the driver brought the switch in again the circuit-breaker would go. But we cannot say; drivers sometimes hold their switch in. Whether he did that or not, of course, we cannot say. It has never been anticipated that an armature or field magnet taking fire would set fire to a train; and the question of smoke and suffocation has never occurred to us as a possible danger. Of course, now, after the event, we can be wise. Our motors are of the original type—the general type originally employed nine years ago. We have not altered them appreciably, in order that they may be all interchangeable. The only alteration we made, as Mr. Ingram said, was the converting some trains into three instead of two coaches each, and we re-wound the magnets to bring them up to be suitable for three-coach trains—that is the only alteration. After nine years, of course, a good many alterations have been made in motors; and if we should be altering or changing our motors, we should undoubtedly put in the iron-clad type now—it is a more up-to-date motor, undoubtedly. We have never had any serious fire breaking out in the cab; but, undoubtedly, it would be wise to take

all possible precautions in the cab also. The relative positions of the burnt train, and of the sleepers in the tunnel, are accurately marked, the plan before the inspector. The nearest point of the sleepers from the train would be 18 feet away from the front end of the train—that is, they were nearest to the last coach that caught fire, and when I was there at 9 o'clock that point of sleepers looked like a fresh blaze, as though they had not caught fire more than an hour before. We have evidence that passengers were first standing here (indicating) and then here (indicating) the siding, which they could not have done if the sleepers had been on fire. That position would have been untenable, and so would the signal cabin. As to the precautions taken to protect the station from fire, the station, from the very first, has been always equipped with suitable hydrants situated at each end of the platform, with a proper length of hose to cover what is called the station ground. That hose was systematically run out, and had a periodical inspection by our own staff; and, further than that, I arranged with a gentleman named Isaacs, of South John Street, who is a fire appliance expert and a big amateur fireman, and he inspected our appliances gratuitously for us, and instructed the men in their proper use. Beyond that we had the station equipped, as all our stations are, with chemical fire-extinguishers. The hydrants were in perfectly good order at this time, though, I suppose, there was no time to get them on. In regard to lighting, there were two systems of lighting available, viz. (1) the main electric current, and (2) gas. It was also formerly lighted by means of accumulators, but I put in gas, owing to the difficulty of keeping the accumulators in order. Therefore we gave our attention to the gas, and it was supplemented by the electricity; and the gas is always available to light all the vital positions. Being incandescent burners, they are always alight, and one action would put them all on. You have heard that the gas was on in the booking-hall and also in the signal-cabin, at the two extreme ends of the station, so we may say that it was on all the way through. The signal-cabin was the last place with a gas-light. The signals are lighted electrically, but we have gas in them as well. The fire did not apparently put the gas out. We have a lot of evidence that the gas was alight in the signal-cabin: but the other evidence shows that the smoke was so dense that, whatever light we had had, it would have been of no use. The train which was standing in the station would be there in the ordinary course. We keep a spare train there, if possible, to be available in case of an armature burning, and in this case Rendell would have changed the driver over to this spare train, if he had come in safely with the other train. We desire not to make any gap in our service. I have always made it a point, too, that the foreman porters at these stations are trained drivers, examined and passed by Mr. Jones, so that we have always a stand-by. Rendell was examined and passed as a skilled driver; and, if necessary, he could handle a train. He has been with us from the first, and was thoroughly reliable. I cannot account for his having gone along into that place there (indicating) instead of lighting the passengers upstairs. I can only assume that he was working his way along the four-foot, and thought that there was safety in getting to that air shaft. He was a man of intelligence—a very level-headed fellow. From what the station foreman at Herculaneum said about the "humming" I see no reason for not allowing



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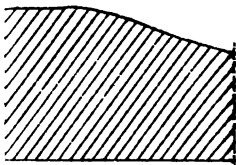
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the train to go on. It is a common thing, and arises from the armature slightly overheating, due to the damp, but nothing should result from it. On a day like that it would undoubtedly be due to the damp. As soon as the motors get warmed up they begin to smell, just like a dynamo would smell slightly, or like rubber near a fire; it does not say that it is on fire, but it just smells. I may state, sir, that the Directors have instructed me to relay the platform with stone instead of wood; and, further than that, I have eliminated all timber about the station. The signal cabin will be reconstructed entirely of brick as far as possible. It had a wooden top before; now it will be entirely of brick. We shall eliminate all woodwork where we possibly can, with iron barriers instead of wooden ones, and even iron hand-rails. From my general knowledge of the circumstances, having heard the different accounts, I should say that the interval between the first flashing seen on the train—the first intimation that anything was wrong—and the time when things had arrived at a very serious state was about twelve minutes. By that time the train was well on fire—the rear coach, no doubt, was well on fire. In that twelve minutes there was plenty of time for everybody to get clear of the train and away; in fact, the passengers had more than half an hour in which they might have got away, as shown by Owen's evidence. Yesterday, Owen told me it was ten minutes past six when he escaped—a few minutes after the last passenger. Mr. Porter, from over the way, tells us that the passengers came out about ten minutes past six. As to the number of passengers actually in the train when it left Herculaneum, you could not have a better witness than Orford, who collected the tickets. You may take him as a reliable man. According to his estimate there were 29. The reason why the flames got ahead so extremely rapidly was that it

was blowing a hurricane up the tunnel. On an ordinary day, I do not think the fire would have spread at all. As far as I am aware the total loss of life is four servants of the Company and two passengers. I will give the names on the official report.

*Robert Sharp*, states: I am a switchman in the employ of the Company. I have been in the service of the Company seven years, and in charge of the switchboard three years. On the afternoon and evening of the 23rd December last I was on duty in the Company's generating station. I came on duty at 2 p.m. When I am on duty the switches at the generating station are under my control, and I receive all telephone messages. I produce my log sheet for the 23rd December. At 5.46 p.m. the Booster automatic switch flew out, indicating that something was wrong at the Herculaneum end of the line. It did not, however, indicate any serious trouble, as if anything serious had happened the main switch controlling the whole line would have thrown out automatically. At 5.48 I received two messages, one from Herculaneum, on the line telephone, and the other from Dingle, on the National line, instructing me to take the current off. The two telephones went at practically the same moment. I immediately switched off the current. This operation is an instantaneous one. I then went back to the telephone, which is only three or four yards from the switches, to await further instructions. I received a message from Herculaneum, along the line telephone, that there was a train on fire in Dingle tunnel, and that they were taking out the section switches at Herculaneum. At 5.53 I received another telephone message from Herculaneum that they had taken the section switches out, and instructing me to switch the current on again north of Herculaneum. This I at once did.

*Copy of the Evidence given by George Manderson Stewart at the Inquest held by  
T. E. Sampson, Esquire, J.P., Coroner for Liverpool.*

*George Manderson Stewart*, being sworn, says: I live at No. 40, Alwyn Street. I left Alexandra Dock Station in a first-class smoking compartment of an Overhead Railway train for Dingle Station shortly after 5 p.m. on the 23rd ultimo. On approaching the switch signals in the south end of the tunnel the train slackened speed and stopped on a crossing. The driver apparently tried and applied power two or three times, but the train did not move. He and the guard then got off and examined the connection between the cars. The guard said that he had got one plug out, but that the remainder were fused in. They continued their efforts, and soon after I heard the guard say he had burnt his hands. He then told the passengers in the second-class car to get out, but the driver said, "Stay where you are, as there is no danger." He then went into the forward motor and again applied the switch, but the guard, who was at the after motor, said, "For God's sake shut her off, or you'll burn us out." The driver then went to the after motor, and on his way assisted a gentleman to alight from the first smoker. On his return I asked him to assist me out, but he told me to shut the door, as I was safer than out about the metals. Being a regular traveller on the line, and having frequently seen fusings, I thought no more about it and sat down. After getting on again the driver must have applied the switch, as the train shook from end to end, but did not go ahead. A few minutes

later I heard a crackling and the sound of breaking glass, and looking out I saw the second non-smoker in a blaze. The guard told us to go into the second-class carriage by the connecting doors, as the centre bar of the crossing was right beneath our carriage door, which made that means of exit very dangerous. However, as the connecting doors were locked we had no option but to try and jump clear of the centre metals. I did so, and going along the line overtook a gentleman whom I believe was the deceased Mr. Bingham. When we reached the end of the platform all the passengers except one, so far as we could see for the smoke, had gone. We wetted our handkerchiefs, and further along the platform were joined by the guard and a boy. The latter said we could not get up the stairs for smoke, but the guard tried to get up but had to return. The station foreman telephoned for the current to be cut off to enable us to rush down the lines towards the Herculaneum Dock. As soon as the current was cut off the electric lights went out and we were in total darkness, neither the gas lights nor the light of the burning train being able to penetrate the dense clouds of smoke. We rushed back, but on getting to the signal-box saw, I think, that the sleepers had caught fire, but I can't say if it was the waggons; I feel that it was the sleepers; I think they must have been the sleepers, as they were nearer to the burning train; and we had to return. Before we left the

platform the guard and boy said they would go to some shaft at the other end, and the foreman and the gentleman I took to be the deceased Mr. Bingham now said they would do the same. I lay down alongside the rails and found the air quite cool, thinking that when the train and sleepers were burnt out the smoke would clear away. While lying there I shouted and was answered from the platform, but could not recognise or properly locate the voices. After a few minutes I heard someone cry "Help," and a fall, and the same thing occurred immediately afterwards. The heat suddenly became very

great, and thinking the platform had got on fire I made a rush for the stairs, and after falling once in the permanent way and stumbling twice over what appeared to have been bodies, I reached the stairs; but I have no recollection of what passed till I found myself in Park Road. I think the guard was trying to get the fire out by disconnecting.

(Signed) GEORGE MANDERSON STEWART.

Sworn before me,

(Signed) THOMAS EDWARD SAMPSON,  
Coroner.

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Printed copies of the above Report were sent to the Company on the 20th March, 1902.

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## LONDON AND SOUTH-WESTERN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
November 6th, 1901.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of 25th October, the result of my enquiry into the causes of a collision, which occurred on the 21st October, between an empty carriage train and a passenger train at Gunnersbury Station, on the London and South-Western Railway.

In this case the 8.35 a.m. passenger train from Twickenham to Clapham Junction was standing in Gunnersbury Station on the up loop platform line, when an empty carriage train was propelled from the down branch line into the up loop and collided with the rear vehicle of the standing passenger train.

The passenger train consisted of a tank engine with one six-wheeled and five four-wheeled carriages, and belonged to the London and South-Western Railway Company. The empty train was the property of the Midland Railway Company, and was composed of a third class six-wheeled brake and a bogie composite brake, which were being propelled by a four-wheels-coupled tank engine.

The collision was fortunately not a violent one. Five passengers in all complained of slight injury and shock.

No vehicles were derailed; actual particulars of damage done to carriage stock are given in the Appendix.

The accident happened about 9.11 a.m., at which time the atmosphere was considerably obscured by fog.

### *Description.*

There are four passenger lines running through Gunnersbury Station in a general north-east and south-west direction. Of these the two northern are used for up traffic, and pass on either side of an island platform; the line to the north of the platform is the up loop, that to the south is the up main line. Similarly, the two southern lines are for down traffic, and are separated by a second island platform; the down loop is on the north, and the down main line on the south side of the platform.

To the south-west of the station the four lines diverge. Two form the double line of the Hounslow branch, and two the main line to Richmond.

The double lines to Acton and Child's Hill, and to Clapham Junction and Waterloo, form a double junction at the north-east end of the station.

The gradient in the station falls towards the north-east at an inclination of 1 in 232.

Separate signal cabins, known as the "East" and "West" respectively, control the junctions and signals at either end of the station.

The view from both cabins towards the station is much restricted by an intervening road overbridge, by the station buildings on the platforms, and the curve of the lines.

A series of treadles has therefore been provided on each of the four platform lines; and in connection with these treadles indicators for each line have been provided in the

two cabins. These indicators display a red disc when a train is standing on any of the platform lines, and indicate that the particular line is occupied by a train.

Owing to the station being a terminal one for a considerable number of trains, it is often necessary to work engines round these trains. On these occasions use is made of a siding road which lies north of the up loop. Ground discs at each end of the station have been provided as shunt signals for the operation.

The running signals have been interlocked with the treadles above mentioned, but the shunt signals are free of any similar interlocking in order to permit of an engine moving round its train whilst the carriages are in occupation of the up loop line, and are therefore standing on the treadles.

### *Evidence.*

*James House*, signalman, states: I have about 18 years' service with the Company, and have been at Gunnersbury East Junction box since last February. I came on duty on October 21st at 5 a.m. and was due off duty at 1.30 p.m. The 8.35 a.m. train from Twickenham to Clapham Junction was offered to me by the West box signalman, simultaneously with the 8.57 a.m. Richmond to Waterloo train, at 9.8 a.m. The former train travelled on the up loop and the latter train on the up main line. I accepted the two trains at the same time. The 8.57 Richmond train I allowed to precede the 8.35 Twickenham train. The former was accepted by Acton Lane Junction at 9.9, and I had warned the latter train but had not received "line clear" from Acton Lane Junction. I received "line clear" from Acton Lane Junction at 9.11, and I pulled off the starting signal for the 8.35 Twickenham train, but finding the train did not start I tried to call the attention of the platform staff on the platform telephone bell, but failing to do this I sent my signal-box boy to the station. In the meantime I was called up on the platform telephone and informed that the Midland empty train had been shunted on to the Twickenham train, and that the latter could not proceed. I therefore reversed the starting signal and accepted the North London train, which was waiting at Kew Gardens. I have no control of the shunt signals at the west end of the station leading into the up loop, but the up loop home signal is controlled by the lock and block plunger. There is the usual Sykes' block between the East and West cabins, and when the up loop platform line has been cleared by a train leaving it, I use the plunger to release the West box. The signalman in the West box is supposed to wait until he hears the bell before shunting a train into the up loop platform line. If a connection had to be made to a train standing in the up loop we would mutually inform one another on the telephone before the shunting was done. There is an indicator in my cabin which shows when the up loop line is occupied by a train. There is no communication between the East and West boxes when an engine is moving round a train. There are still a number of trains that terminate at Gunnersbury Station for which it is necessary to run the engines round the trains. In my opinion it would be a security to lock the shunt signals at either end of the station by the fouling bars on the up loop line.

*James Thayer*, signalman at Gunnersbury West box, states: I have 12 years' service with the Company and have been four years at Gunnersbury. I came on duty on October 21st at 5.30 a.m. and was due off at 1.30 p.m. I offered the 8.35 a.m. Twickenham train and the 8.57 Richmond train to the East Junction box almost simultaneously at 9.8 a.m. They were accepted at once. The Midland Company's train from

Child's Hill arrived in the down loop at 9.7, and had to be shunted to the up loop. There are no shunt signals governing the through cross-over road from the down platform loop to the down line of the Hounslow branch. I set this cross-over road and called out to the shunter, who I suppose was on the platform, that the road was all right. It was foggy and I could not see him. The Midland empty train then drew out over the cross-over road and passed my box on the down branch line clear of the points at the back of my box, and I saw the shunter in the brake van at the rear of the train. The train stood in that position about two minutes, and I thought I heard the clearance for the 8.35 Twickenham train from the up loop platform line. I therefore pushed the ground disc for the Midland train to back into the up loop line. There is an indicator in the West box on which a red disc is shown when the up loop line is occupied by a train. I cannot say whether I looked at this indicator before using the ground disc to allow the Midland train to shunt back on to the up loop, but if I had seen the red disc I should not have pushed the ground disc. In my opinion, the treadles which actuate the red disc should lock the ground signal leading to the up loop line, in which case we could not let anything into the up loop. The treadles do lock the up branch home signal. Some method would be necessary to allow us to get engines round trains. I think if the indicator discs were larger there would be more likelihood of their being observed. I have been a signalman for some years in boxes where these discs—of the same size—are in operation, and have not had occasion to object to them before on account of their size. I have not got any good view of the platform, and on that particular day the fog was so thick that I should not have been able to see the train standing at the up loop platform. I think it was my second term of duty on which I had to shunt the Midland train in the manner described. I am quite prepared to admit it was an oversight on my part in not seeing whether the disc indicator showed a train on the block or not. I think there is a practical arrangement by which the treadles when operated by a train can be made to lock the shunt signals and at the same time allow for the facility required for an engine moving round its train.

*Walter Davey*, porter, states:—I have been nearly two years in the Company's service. I was in charge of the shunting of the Midland Company's train on Monday, 21st instant. The train is not signalled over the crossing, and I cannot remember what actual signal I received on this occasion, but as it was foggy I suppose I must have heard the signalman call out that the road was set. The Midland train consisted of an engine and two passenger coaches with a guard's compartment at the rear of the last vehicle.

I was on the engine whilst the train was being pulled over the cross-over road, and after standing on the down branch line for about two minutes the signalman lowered the ground disc for the train to back to the up loop platform line. I was then riding in the guard's compartment, which was leading. It was very foggy that morning, and I could not see any great distance. Owing to the curve of the line I did not get a view of the Twickenham train standing at the up loop platform until I was about ten yards from it. We were then coming back rather smart. I immediately shouted to the driver, and showed a red flag. It did not occur to me to apply either of the brakes, and finding the train did not stop I jumped out just before the collision occurred. I know how to apply both the vacuum and the hand brake, and if I had applied the vacuum brake immediately I saw the train in front of me it would at least have lessened the violence of the collision. The guard of the Midland train was on the engine. I have had instructions about my duties in connection with shunting, but have not been regularly trained.

*John Terry*, driver, states:—I have been more than 40 years in the service of the Company, and about 36 years as a driver. I came on duty on the 21st October at 4.30 a.m., and was due off about 3.20 p.m. I was driving the 8.35 a.m. train from Twickenham on the day of the accident. My engine was No. 181, four-wheels-coupled passenger tank engine, running chimney in front. After standing two or three minutes at the up loop platform I heard shouting, and looking along the platform I saw the guard of my train waving his arms, and I also saw the Midland train. I immediately gave my engine a little steam, and we moved forward two or three yards when I felt the shock which threw me backward on to the tool box. The starting signal was against me, but I gave the engine steam to reduce the force of the collision which was imminent. The brake blocks had been previously blown off.

*John Mason*, driver, states:—I have been 32 years with the Midland Company, about 26 as a driver. I came on duty on the 21st October at 6.30 a.m. and was due off about 4.30 p.m. I was driving the 8.43 a.m. Midland train from Child's Hill to Gunnersbury. My engine was No. 2219, four-wheels-coupled passenger tank engine, chimney leading. It was fitted with the vacuum and steam brakes. The four coupled wheels of the engine were braked, and there was a hand brake. After arriving at Gunnersbury station a shunter took charge of the shunting of the train on to the up loop line. I gave the engine steam, and we

came to a stand on the down branch line, but did not stand a minute before we saw the left hand ground disc come off, and I got a flag signal from the shunter. I then set back the train. It was a foggy morning, and I could only just see the rear of my train clearly. Our speed would not have been more than four miles an hour. As I was passing the stationmaster's office I heard some shouting, and further applied the brake. I had it partially applied at the time to keep the train steady. The application of the brake made the wheels skid. The rails were very greasy. I should guess we might have run about two engine-lengths after I heard the shouting before striking the train in front.

*Herbert Haddington*, fireman, states:—I have been nearly five years in the service of the Midland Railway Company, and was with driver *Mason* on the 21st instant. My hours of duty were the same as his. I was not aware that a train was standing in front of us until the collision actually occurred. I felt the driver apply the brake before the collision, but thought that he was doing it in the ordinary course to stop the train at the platform. I heard no shouting, and saw no red flag displayed before the collision occurred. Our speed might have been four or five miles an hour at the time of the accident.

*Thomas Noton*, passenger guard, states:—I have had 13 years' service with the Midland Company, and have been guard for about six years. The 8.43 a.m. train from Child's Hill was composed of a bogie composite brake and a six-wheeled third-class van. Twelve wheels out of fourteen were braked. I was in the rear brake van whilst the train was being drawn from the down loop to the down branch line. The train might have stood for a minute or minute-and-a-half at the signal-box. I got out of the rear brake van at the signal-box and walked towards the engine. When the train set back I got on the engine, and was standing with my back to the coal bunker as the train set back to the platform. I therefore saw nothing in front of me, and heard no shouting. The first intimation I had of the accident was from the blow due to the collision itself. I saw the driver before the collision occurred apply the brake slightly, and thought that he was doing so to let the train run steadily. I do not think that the speed would have been more than four miles an hour.

*Walter Dawey*, porter, recalled, stated:—I showed my flag out on the right-hand side.

### Conclusion.

The circumstances which led to this slight collision were as follows:—

The 8.35 a.m. train from Twickenham, on the Hounslow branch, was signalled from the west cabin on the up loop at 9.8 a.m. The train passed the west cabin and came to a stand at the platform. The 8.43 a.m. (Midland) train from Child's Hill arrived at the down loop platform at 9.7 a.m. and discharged its passengers. Gunnersbury is a terminal station for this and other trains from Child's Hill, and signalman *Thayre*, of the west cabin, proceeded to set the cross-over road from the down loop to the down line of the Hounslow branch, in order to work the Midland empty train on to the up loop. The train drew across in charge of a shunter on to the down branch line past the west signal-cabin, and stood a minute or two waiting.

*Thayre* states he thought he heard the clearance signal of the 8.35 train sound on his instrument, and therefore gave the signal (ground disc) for the empty train to back into the up loop. The train was propelled through the cross-over from the down branch



to the up branch line and, entering the station, collided with the rear of the Twickenham train, which had not left the platform.

The shunter (Davey) explains that, owing to the fog, he did not see the rear of the standing train until within ten yards of it, and then tried to attract the attention of the Midland Company's driver, but failed to do so in time to prevent a collision.

Had signalman Thayre availed himself of the information at his disposal, afforded by the train indicator, he would have known the up loop was still occupied by the Twickenham train. He admits it was an oversight on his part not to consult the indicator, and the responsibility for the accident must rest with him.

The difficulties of working the traffic, on account of trains losing time in the fog, may perhaps be taken into consideration in judging his mistake.

Porter Davey does not appear to be altogether free from blame, for he failed to make use of either the hand or vacuum brake when he saw a collision was imminent.

The force of the collision was minimised by the fact that the brake blocks of the Twickenham train had been blown off, and the train had just commenced to move.

Signalman Thayre in his evidence suggests that the same interlocking should be provided between the treadles and the ground disc for the shunting operation, as now exists between the treadles and the running signals, so that it shall be impossible to give permission for a movement by the ground disc when a train is in occupation of a platform line. So long, however, as the station is used as a terminal one, and it is necessary to work engines round trains, I do not think the interlocking suggested would be practicable. The appliances, in the shape of train indicators, that already exist, appear to meet adequately safety requirements, provided that they are utilised.

On the other hand, though this point has no bearing on the accident under report, in view of the frequent shunting that must take place daily over the crossing from the down loop to the down branch line, and of the inadequate method of hand-signalling or shouting that has now to be employed, the provision of a shunt signal applicable to this crossing is, I think, advisable.

I have, &c.,

J. W. PRINGLE,  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### APPENDIX.

##### PARTICULARS OF DAMAGED STOCK.

No. 502 Third-Class Brake.—Buffer rods bent.	No. 235 Composite. — Three quarter lights
No. 748 Third-Class Coach.—Three quarter	broken.
lights broken, and buffer rods bent.	No. 287 Midland Brake Composite.—Buffer
No. 320 Third-Class Brake.—Three roof lights	rods bent; one buffer casting broken, and head-
broken.	stock slightly damaged.

Printed copies of the above Report were sent to the Companies concerned on the 23rd November.

#### LONDON AND SOUTH-WESTERN RAILWAY.

Railway Department (Board of Trade),  
8, Richmond Terrace, Whitehall, London, S.W.  
November 30th, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 12th inst., the result of my Inquiry into the cause of the collision which occurred on the 6th inst., about 4.45 p.m., at Turnham Green Station on the London and South-Western Railway.

In this case the 4.42 p.m. up passenger train, belonging to the Metropolitan District Railway Company, collided with the rear of the 4.25 p.m. up passenger train of the South-Western Railway Company as the latter was standing at the up platform in the station.

The first-mentioned train consisted of a four-wheels-coupled tank engine, running chimney first, and six close-buffered four-wheeled coaches. It was fitted throughout with the Westinghouse automatic brake.

The latter train was composed of a similar type of engine and nine four-wheeled coaches, and was equipped with the Vacuum automatic and steam brake.

Two passengers complained of injury from shock, and the guard of the District train suffered from contusion.

No damage was done to permanent way.

Details of the damage to rolling stock are given in the Appendix.

A thick fog prevailed at the time of the accident.

### *Description.*

The two lines through Turnham Green Station run in a general east and west direction.

The two platforms, for up and down traffic, lie to the north and south, respectively.

West of the station there is a double junction where the Metropolitan District Railway Company's double line from Acton Green and Ealing on the north joins the South-Western Railway Company's double line from Gunnersbury and Richmond on the south.

The junction points are about 33 yards from the western extremities of the station platforms. The Junction Signal Cabin is situated immediately opposite the junction points, on the north side of the line. Under ordinary circumstances there is a clear view from the signal cabin through the station.

The line concerned in this accident is the up line from Ealing, and the up main line through the station. The gradient on the Metropolitan District line falls at an inclination of 1 in 537 to the junction points. Thence through the station there is a rising gradient of 1 in 3,000.

The South-Western train was standing in the station at the up platform with the rear coach about 50 yards from the signal cabin, when the collision occurred.

The up home signal for the Ealing train is 258 yards west of the signal cabin, and was in the clear position when the Metropolitan District train passed it. The up starting signal is situated about 20 yards beyond the eastern extremity of the platform, and was at danger when the collision took place.

There is the usual electrical interlocking between these signals, by means of which, when the up home signal has once been pulled "off" and replaced, it cannot be again used until the up starting signal has been pulled "off" and replaced. The latter signal cannot, further, be replaced until a train has actuated an electrical treadle in advance of it.

### *Evidence.*

*Joseph Watts*, signalman, states: I have 19 years' service with the Company, and have been a signalman for eight years, during which I have been 2½ years at Turnham Green. I came on duty on November 6th, at 2 p.m., and was due off duty at 10 p.m. The 4.25 p.m. train (Richmond to Waterloo) was warned to me by Acton Lane Junction at 4.35 p.m. It was accepted by me at 4.37 p.m., and arrived at Turnham Green at 4.39 p.m. I sent the departure signal for the train to Ravenscourt Park at 4.40 p.m., and it was accepted at once. I had not pulled off the starting signal, though I ought to have done this before signalling the departure of the train. It was very foggy at the time, and I could not see the train while it was standing at the platform. But, although I did not see it start, I concluded it had left the station at 4.40 p.m. When, therefore, the 4.42 p.m. train of the District Company from Chiswick Park was offered to me at 4.43 p.m. I accepted it at once. I found I could not lower the home signal for this train, and concluded that there had been a temporary failure in the Sykes' electrical locking. I therefore used the key to free the instrument, without making any enquiries, and then was enabled to lower the

home signal for the District Company's train. Immediately after doing this, I enquired by telephone of the signalman at Ravenscourt Park where the Waterloo train was, as I did not receive "Line clear" for it. He told me he had not seen it. I then discovered the mistake I had made, but it was too late to do anything to prevent the collision, as the District train was passing my box. The instrument key hangs on the instrument board in my cabin, just over the lever frame. I cannot say definitely how often failures in the electrical interlocking occur. Sometimes two or three may occur in one day, at other times one may not occur for two or three weeks. Generally, if a failure occurs in connection with the home signal, I can see if the train is still in the station, and do not need to make enquiries before using the key. I don't think I had occasion to use the key during the week in which the accident occurred. I do not enter in my train book the occasions when I make use of the key, except in cases where a delay has occurred to a train. There is, therefore, no complete record kept of failures in the electrical locking. We have to communicate with the linemen as soon as possible after a failure has occurred.

*Walter Way*, signalman, states: I have 26 years' service with the Company, and have been signalman at Ravenscourt Park about 25 years. I came on duty on November 6th, at 2 p.m., and was due off duty at 10 p.m. I sent "Line clear" to Turnham Green behind the District Company's 4.22 from Ealing at 4.37. The 4.25 Richmond to Waterloo was offered to me at 4.43, and I accepted it at that time. Finding it did not arrive in the usual course, I called the signalman at Turnham Green on the telephone, and asked him where the Waterloo train was. He replied, "You have cleared behind it, as my instrument is free," to which I answered, "How can that be, as all my signals are off, and it has not arrived?" He further said, "I have accepted a District train," I then advised him to stop it, but he said it was too late, as it was passing his signal-box. The failures in my box in the electrical locking are very rare—possibly they may amount to two or three times a year.

*George Thomas Maynard*, station-master, states: I have nearly 40 years' service with the Company, and have been station-master at Turnham Green nearly two years. I was on the up platform when the 4.25 p.m. train (Richmond to Waterloo) arrived on November 6th. It was very foggy, and noticing the train did not start, I went towards the starting signal, which I found at danger. I am not prepared to say that the signalman could have seen either the brake van or the tail lights of the train from the signal cabin. After waiting there a few minutes, I walked towards the rear of the train, my intention being to go to the signal-box and enquire the cause of the detention, which seemed to me to be unusual. Just before reaching the end of the platform, I heard the rattle of a train approaching, and feeling that something was wrong, I immediately shouted as loudly as I could to the guard, "Get out, and go ahead." This warning guard Pert acted upon, and several passengers alighted from the South-Western train. The District Company's train appeared to be entering the station at the usual speed, and I could see that the driver of it was doing his best to stop the train to lessen the collision. Personally, I should prefer, as an old signalman, that the instrument key should be kept outside the cabin, possibly in the station-master's office. There are about 340 trains a day through the station. Delay, of course, would result from taking the key from the signalman, possibly two or three times a week.

*Walter Pert*, guard, states: I have 30 years' service with the Company, 25 as guard. I came on duty on Wednesday, November 6th, at 8.45 a.m., to work until 8.30 p.m., having an interval of five hours off duty. I was guard of the 4.25 p.m. passenger train from Richmond to Waterloo, which arrived at Turnham Green at 4.41 p.m. by my watch. I walked from the rear van in which I was riding to the front part of the train, when I found that the starting signal was at danger. After waiting there a few minutes, I heard Mr. Maynard, who had just previously been talking to me on the platform, shouting "Get out," and hearing another train approaching, I immediately concluded something wrong had happened, and shouted as quickly and loudly as I could to the passengers in my train to get out, and most of them did so. There were about 25 to 30 passengers in the train, and all got out except two in the front of the train. I received no complaints from any of my passengers of having been injured.

*James Cocker*, driver, states: I have been in the service 22 years, 20 years of which I have

been a driver. I came on duty on Wednesday, November 6th, at 1.30 p.m. to work until 11.30 p.m. I worked the 4.25 p.m. train, Richmond to Waterloo. My engine was No. 432, four-wheels-coupled radial tank engine, with automatic vacuum and steam brake combined, working blocks on four wheels, running chimney first. On approaching Turnham Green I found the distant signal at danger, the home signal off, and the starting signal at danger. According to my watch we arrived at Turnham Green about 4.41. After waiting at the signal about six or seven minutes I heard someone shouting "All out," and immediately afterwards "Pull up," and as I was about to give my engine steam the collision occurred, which threw my mate and myself back against the coal bunker. The brakes had been blown off before the collision occurred. I did not sound the engine whistle while detained at the starting signal, as I fully expected another train was at the next station, and was momentarily expecting the signal to be lowered for me. I was slightly shaken, but able to complete my duty for the day.

*James Phillips*, fireman, states: I have been six years in the Company's service, two years as fireman. I was working the same turn of duty as driver Cocker. I have heard my driver's statement, which is quite correct. I was shaken by the collision. I don't think anything would have been visible at 50 yards, owing to the thickness of the fog.

*Thomas Iseet*, driver, states: I have 27 years' service with the Metropolitan District Company, about 12 years as driver. I came on duty on Wednesday, 6th November, at 1.20 p.m., to work until 7.45. I was working the 4.42 p.m. passenger train from Chiswick Park to Earl's Court. My engine was No. 52, four-wheels-coupled bogie tank engine, running chimney first, fitted with the Westinghouse automatic brake, working blocks on four wheels. The train consisted of six coaches, close buffered. We left Chiswick Park at 4.46, and on passing the up distant signal for Turnham Green it was "on," and I ran at a speed, not exceeding 10 miles, that would have enabled me to pull up at the home signal. The home signal was off, and I ran into the station. My fireman first called my attention to the train in front when we were about half-way between the signal cabin and the station, and I did everything in my power in the short time at my disposal to lessen the force of the collision by fully applying the automatic brake and also reversing my engine and giving it steam. I was not injured in any way. We were running at a speed of about 10 to 12 miles an hour at the time of the collision. I was looking out ahead, and failed to notice the standing train earlier on account of the fog. My brakes were in good working order, and the wheels were not locked by the forcible application of the brake power.

*James Elswood*, fireman, states: I have 17 years' service with the Metropolitan District Company, and have been a fireman about 14 years. My hours of duty on 6th November were the same as driver Iseet. I have heard the statement of my driver and agree with it. I was not injured in any way. I saw the train standing at the station, when we were about 20 yards from it, and shouted out to the driver. I think I saw the outline of the van before I saw the tail lights.

*Joseph Titmus*, guard, states: I have about 17 years' service, about 13 as underguard. My hours of duty on 6th November were from

3.6 p.m. to 12.14 a.m. There were six four-wheeled coaches on my train, all wheels braked. I was riding in the rear carriage, and do not think I could see more than 30 yards through the fog. I was standing in my van ready to get out, when I felt the brakes violently applied, and was then thrown against the partition by the force of the collision, and was insensible for a short time. There were three passengers in my train, and no complaints were made to me after the accident by any of them.

*Herbert Parsons*, signalman, states: I have 15 years' service, and have been  $3\frac{1}{2}$  years signal-

man, and have been stationed at Turnham Green the last 16 months. My hours of duty on 6th November were from 10 p.m. to 6 a.m. I had to use the key four times to release the down home signal for Richmond on the 14th instant, and twice sent for the lineman on that night. There were two other failures of the same treadle in the morning after I was relieved. New batteries were supplied the next day, and no failure has occurred since that day. The failures due to the treadles not working are not so frequent as to cause serious delay if the release key for the instruments were kept in the station-master's office.

### *Conclusion.*

Signalman Watts, in his straightforward statement, leaves no doubt as to how this accident occurred.

There was a dense fog at the time, and it may be taken as proved that it was impossible from the signal cabin to see the tail lights of the South-Western train as it stood at the platform.

Watts signalled the departure of this train, forgetting to pull "off" the starting signal to allow it to proceed. The train was, therefore, held at the station, while Watts concluded it had left. When, after accepting the District train, he found he could not lower the home signal, the lever of which was locked as the starting signal had not been used, Watts assumed there had been a failure in the electrical interlocking. By means of his release key, he freed the lever of the electrical lock, and was thereby enabled to lower the home signal, and authorise the District train to enter the station. The collision resulted.

The primary cause of the accident appears to have been the irregular method of signalling the departure of a train before it had left the station, or was ready, apparently, to leave the station. The immediate cause was the improper use of the release key.

The full responsibility for the collision, therefore, rests on signalman Watts, and by his statement he frankly accepts it. The thick fog, by depriving him of the view of the tail lights of the standing train, increased his difficulties in working the traffic. This circumstance and his straightforward evidence may be set to his credit.

No blame attaches to any other employé of either of the Railway Companies concerned.

The station-master and staff at Turnham Green appear to have acted promptly when the District train was heard approaching. To their efforts is doubtless due the small number of casualties amongst the passengers of the South-Western train.

I endeavoured to obtain data as to the number of failures that normally occur in the electrical interlocking, but the evidence of the witnesses on this point was somewhat contradictory, and there is no full record kept of such failures.

There are difficulties, in the way of delay to traffic, to be foreseen if the release key of the electrical instruments is removed from the charge of the signalman and placed under the care of the station-master or inspector. But if, as should be the case with proper maintenance, the failures in the electrical interlocking are of rare occurrence, the delays should be infrequent and inconsiderable, except at terminal or other stations where the regular use of the release key is necessary for shunting operations.

I submit, therefore, for the consideration of the Company, whether it would not be advisable at stations like Turnham Green, where the use of the release key is only necessary in the case of a failure in the electrical interlocking, to place the key in charge of one or other of the station officials rather than to leave it in the uncontrolled charge of the signalmen.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

## APPENDIX.

## PARTICULARS OF DAMAGE TO ROLLING STOCK.

South-Western Train, No. 0367 third class brake.—Completely broken up.

No. 368 third class brake.—Headstock and buffer casting broken.

In six of the coaches 38 quarter lights and one door glass were broken.

District Train, No. 52 engine.—Leading buffer beam broken, smokebox door damaged, and two head lamps broken.

No. 48 third class coach.—One cross bearer broken.

No. 7 first class coach.—One cross bearer broken.

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Printed copies of the above Report were sent to the Companies concerned on the 27th December.

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## LONDON AND SOUTH-WESTERN RAILWAY.

Board of Trade, Railway Department,  
8, Richmond Terrace, Whitehall, S.W.

14th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 27th November, the result of my inquiry into the cause of the accident which occurred on the 23rd November, about 10.42 p.m., near Malden Station, on the London and South-Western Railway.

In this case, a goods train was slowly drawing past the up home signal on the Kingston line, when a following passenger train entered the same block section, and dashed into the rear of the goods train.

The goods train was the 5.15 p.m. (Brent to Wimbledon) and consisted of a four-wheels-coupled tender engine, running chimney first, with 23 waggons and a brake van, all four-wheeled vehicles. The engine was fitted with the steam brake, actuating blocks on the four coupled and six tender wheels.

The passenger train (10.35 p.m. Kingston to Waterloo) was composed of one six-wheeled and 13 four-wheeled coaches, drawn by a four-wheels-coupled tank engine, chimney in front. The train was fitted throughout with the vacuum automatic and steam brake, working blocks on the four-coupled engine and on 56 out of the 58 coach wheels.

The guard of the goods train was so severely injured by the collision that he died shortly afterwards. In addition, the two guards of the passenger train and 43 passengers suffered from contusion or complained of the effects of shock.

The brake van at the rear of the goods train was smashed to pieces. Six goods waggons were derailed, four being thrown over the embankment. A list of damage to rolling stock and permanent way is given in the Appendix.

A thick fog prevailed at the time in the vicinity of the scene of the accident.

*Description.*

Malden Junction, at the west end of Coombe and Malden Station, is the point where the double line branch to Norbiton and Kingston bifurcates from the Company's main line. Norbiton Station lies north-west of Malden Junction.

Between Malden Junction and Norbiton Station signal cabins there is a block post known as Malden Crossing signal cabin, where the railway crosses on the level Elm Grove Road. This signal cabin is about a mile distant from Norbiton, and one-third of a mile from Malden Junction. The up line between Norbiton and Malden is alone concerned in this accident, and need only be referred to in this description.

The gradient on this line falls at an inclination of 1 in 242 from Norbiton to Malden Crossing. Thence the line rises by a gradient of 1 in 130 to Malden Junction.

An up train travelling on this road is governed by the following signals :—

	Yards.	
(1) Norbiton starting ... ..	74	S.E. of Norbiton signal cabin.
(2) " advance starting...	473	" No. 1.
(3) Malden Crossing distant ...	338	" No. 2.
(4) " " outer home	603	" No. 3.
(5) " " inner home	321	" No. 4 and 10 yards N.W. of Malden Crossing signal cabin.
(6) Malden Junction distant ...		on the same post as and under No. 5.
(7) " " home ...	509	E. of No. 6, and 152 yards W. of Malden Junction signal cabin.

The posts carrying Nos. 1, 2 and 3 signals are on the proper left of the up line, the post carrying No. 4, and that carrying Nos. 5 and 6 are on the right-hand side and south of both lines of way.

The actual point of collision was between Nos. 6 and 7 signals, 151 yards west of No. 7. The goods train, after first coming to a stand at No. 7 signal, had just commenced to draw forward in obedience to a clear signal, when the engine of the following passenger train struck the rear brake van.

There is the usual electrical interlocking between Malden Junction and Malden Crossing signal cabins, by means of which the signalman at the latter cabin is unable to give a "clear" signal with No. 5 until the passage of a previous train over an electric treadle in advance of No. 7 signal enables the signalman at Malden Junction, after replacing No. 7 to "danger," to send the clearance signal for that train on the block instrument.

The following extracts from the Company's "Supplementary Instructions as to Fogs and Snowstorms" will be of interest :—

No. 3. In order that drivers may be aware of the fogmen being at their posts, the latter must, if the signal be lowered, show a green light to the driver of each train when passing him. In the absence of such a signal, and if the fixed signal cannot be seen, the driver is to conclude that the fogman is not at his post, and act in accordance with Rule 74, as follows :—

"The absence of a signal at a place where a signal is ordinarily shown . . . . must be considered a danger signal, and treated accordingly. . . . ."

No. 45. Enginemen are not to consider that they can run up to a red signal without risk, provided they do not pass it, but a red signal wherever placed means "Stop immediately." . . . This, in the case of distant signals, is simply modified to the extent that trains may DRAW AT A WALKING PACE WITHIN THE PROTECTION OF THE DISTANT SIGNAL. . . .

No. 46. In the case of a fog or snowstorm coming on suddenly, and the fogmen have not taken up their positions, enginemen are instructed to stop at the signal-box and ascertain whether the section ahead is clear.

### Evidence.

*Henry Vincent*, signalman, states : I have about 23 years' service with the Company. I am signalman at Norbiton, and came on duty at 1.30 p.m. on Saturday, 23rd November, and left off at 11 p.m. The 5.15 p.m. goods train from Brent is booked to stop at Norbiton, but having no vehicles to take off on this occasion and nothing to be attached, the train did not stop. It left Kingston at 10.22 p.m., passed my box at 10.29, and was accepted at the same time by Malden Crossing, all my signals being off for it. This train was cleared back from Malden Crossing at 10.38 p.m. The 10.35 p.m. passenger train from Kingston left that station at 10.36, arrived at Norbiton 10.38, and stood at the up platform. I did not pull off all my signals for this train until it was in the station, when just as it came in I received the all clear signal from Malden Crossing behind the goods train. The train left Norbiton at 10.39 p.m., and I signalled her departure to Malden Crossing accordingly. It was foggy at this time, but I did not consider it thick enough to have fogmen out. At 10.39 I should say I could see signal lights at a distance of about 200 yards. The fog was, however, increasing, and was approaching from the direction of Malden Crossing. The fogmen as a rule come out of their

own accord and report themselves to me. If they do not come and I consider it necessary I send for them. If I could not see signals at a distance of 200 yards I should send for fogmen.

*Charles Hester*, signalman, states : I have about 11 years' service, and have been signalman at Malden Crossing about 2 years, and came on duty on Saturday, 23rd November, at 10 p.m., to work until 6 a.m. the following morning. I received the departure signal of the 5.15 p.m. Brent goods train at 10.30 p.m., and it passed my box at 10.37, and I cleared back to Norbiton at 10.38. I received the clearance for the previous train from Malden Junction at 10.32 p.m., and pulled off all my signals for the goods train. The 10.35 p.m. train from Kingston left Norbiton at 10.39, and all my up signals, distant, outer and inner homes were at danger. After having received the departure signal from Norbiton of the Kingston train, I rang the public warning bell on the level crossing, and opened the gates to allow the train to pass, as after the goods train had cleared the gates I had again closed the gates across the railway. We open the gates upon receipt of the departure signal of a train from Norbiton. I had to wait some little time to allow foot passengers

over the crossing before locking the wickets, and I had only just locked the wickets when I heard the 10.35 train close upon me. I never lowered my signals for this train, all three, the distant, stop, and home, being at danger at the time. I should say the driver of the 10.35 was running about 30 miles an hour when passing my box. The train had run there from Norbiton in two minutes, whereas it generally takes 2½ minutes to travel the distance. When I saw the train was running past my signals I went to the window and shouted to the driver, and shewed a red light, and also telephoned to the signalman at Malden Junction, telling him the train had run past my signals, and directly after I heard the collision. Shortly after the goods train was signalled from Norbiton, I went outside to put some fog-signals at the inner home signal. This was just before I received the all clear signal from Malden Junction. On hearing the clearance signal I came back and pulled off the signals for the goods train, and did not trouble to place the detonators on the line. It did not occur to me to place a detonator on the line for the Malden Junction up distant signal, which is on the same post as my inner home signal. As the goods was approaching I went out some distance towards Norbiton and told the driver that my home signal was off but that the Malden distant was on. I then walked back to the cabin, and could see my inner home signal and the Malden Junction distant signal lights, at a distance of about ten yards. On reaching my cabin I signalled the departure of the goods train. I am quite certain I had some fog-signals with me when I went out, but I did not put any down although I knew the Malden Junction distant was at danger, because I do not understand it is my duty to fog other than my own signals. After replacing my distant signal to danger behind the goods train, the electrical repeater in my box went to and remained at danger. The electrical repeater of my outer home signal also went to danger. About 10.20 p.m. the fog was so thick that I expected to see the fogmen out; but no fogmen arrived for my signals that night. Under ordinary circumstances I have my up and down distant signals fogged—in dense fogs a third fogman attends to protect the crossing. He also fogs my up inner home signal. I did not telephone to Malden Junction for the fogmen on this occasion. They are generally to be depended upon for coming out in foggy weather. The fog came over very suddenly. I can't say from which direction. I could not have pulled off my inner home signal for the passenger train as it had not been freed by the plunger in Malden Junction box. I saw the indicator on the instrument reading "locked" and did not, therefore, try to pull the lever.

*John Skinner*, signalman, states: I have about 28 years' service, and have been signalman at Malden Junction signal-box about five years. I came on duty on Saturday, 23rd November, at 10 p.m. to work till 6 a.m. the following morning. The 5.15 p.m. goods train was signalled on to me from Malden Crossing at 10.37, and all my signals applying to the Kingston line were at danger, the block being on at Raynes Park, a sheep special train having passed me on the local line, which was not cleared from Raynes Park until 10.40. Soon after the train had left Malden Crossing I pulled my home signal off to admit it to the up main local line, and so avoid its stopping on the bank. I do not know whether the train actually came to a stand at the home signal, as it was too foggy for me to see so far. A few moments after

this the signalman at Malden Crossing called me up on the telephone and said, "The 10.35 has run by my signals," and I replied that the goods had not reached here yet, and directly after this I heard the collision. When I came on duty it was quite clear, but about twenty minutes later a fog came on from the direction of Raynes Park, and I was told that a fogman had arrived at the Malden Crossing box and had asked if he was required. I told the signalman to send him on to my box. He arrived about 10.30 p.m. and proceeded to fog both down main roads. I had one other fogman out, who fog-signalled the up main lines, both local and through. William Adams should have fogged my up distant Kingston line signal, but he did not turn up. The up inner home signal at Malden Crossing is freed by the use of the plunger in my box. I did not use this plunger to free it for the passenger train.

*William Clements*, driver, states: I have 39 years' service, and about 23 years as driver. I was the driver of the 5.15 p.m. goods train from Brent to Wimbledon on the 23rd November. I came on duty at 8 a.m. and should have left off duty at 6 p.m., but on account of the fog being so thick I had missed my relief. When I arrived at Norbiton all my signals were off, and I did not stop at the station. The Malden Crossing distant signal was on, and I proceeded cautiously to the outer stop signal, which I found off, and I then went on to the home signal at the gates, and the signalman at Malden Crossing came out and told me his signal was off, but the Malden Junction distant signal was at danger. I saw them both as I passed them. I then went on to the Malden Junction home signal and stopped. Almost directly it was pulled off, and I again started, and had run about a length of the engine and a waggon past the signal when the passenger train ran into us. It was foggy at Norbiton when I passed there, but it became much thicker suddenly before I reached the Malden Crossing distant signal. I think that a driver with a knowledge of the road could not have failed to see the Malden Crossing signal lights as he passed them, though the fog was thick. The force of the collision threw me against the tender. My engine was a four-wheels-coupled tender engine for mixed traffic, running chimney first. It was fitted with the steam and hand brake—brake blocks on the four-coupled engine and on the six tender wheels. The steam brake was applicable to all the braked wheels; hand brake to the tender wheels only. The train consisted of 23 four-wheeled waggons and a four-wheeled brake van. I was running slowly on account of the fog. There were no fogmen out at the signals.

*Frederick Bailey*, fireman, states: I have four years' service with the Company. I was fireman to driver Clements on the 5.15 p.m. goods train from Brent to Wimbledon on the 23rd November, and performed the same hours of duty as the driver. This was the first time I had been over this line. At Norbiton all the signals were off, but I did not see either the Malden Crossing distant or outer stop signal. I saw the inner stop signal was off and the Malden Junction distant signal was at danger when we were close to the post. I could see these signals quite plainly. After we passed the level crossing we proceeded very cautiously, and I saw the Malden Junction home signal off, and had passed it just about an engine's length when something collided with us at the rear, and threw me and my mate over into the tender. We just came to a stand



before the Malden Junction home signal was taken off for us.

*William Thomas Squires*, driver, states:—I have about 20 years' service, four years as a driver. I was the driver of the 10.35 p.m. passenger train from Kingston to Waterloo on Saturday, 23rd November, and came on duty at Strawberry Hill at 4.0 p.m., and should have signed off at 2.0 a.m. My first duty was to work the 4.22 passenger train, Strawberry Hill to Kingston, then the 5.10 p.m. train, Kingston to Waterloo, arriving there at 6.19, then the 6.32 p.m., Waterloo to Richmond, then the 7.45 p.m., Richmond to Waterloo, where I arrived eight minutes late, and then my next train was the 9.35 p.m. "round-about" train, which is the 10.35 p.m. from Kingston. To the best of my recollection we were about two minutes late arriving at Kingston. We left Kingston, I think, right time, and arrived at Norbiton about 10.37, having had a clear run from Kingston, and, after we had done the work at the station, we proceeded on our journey, all the signals being off for us to do so, that is—the Norbiton starting and advance signals. The advance signal I could see from a distance of about 50 yards. My speed would be about 15 miles. Before reaching the Malden Crossing distant signal we ran into a thick bank of fog. I could see the distant signal light at about 15 yards distance. It was showing a green light. The next signal is the Malden Crossing outer home, and that I did not see. But having seen the distant signal was off I assumed I was justified in passing the outer home signal. The stop signal at the level crossing I did not see either, but my fireman saw it, and told me it was off. I saw the distant from Malden Junction was at danger. I am quite confident the Malden Crossing distant was showing a green light as I passed it. I saw the Malden Junction distant signal, but could not see the level crossing home signal, although I looked for it, and I daresay the fog prevented me. My speed at the crossing would be from 20 to 25 miles an hour. After I had passed this signal I shut off steam and applied my brake slightly, and when I had done this I saw two red lights in front of us, and directly after collided with the rear van of the goods train. My speed might then have been from 12 to 15 miles an hour. When we ran into the goods train my mate was knocked against the weather board, and I was knocked against the side of the engine, both being somewhat stunned for the moment. I do not think my brakes were applied at the moment of the collision. Immediately we had stopped I called my mate and told him to go up to the station for assistance, and tell them what had happened. He did so, and I then got off the engine and called my guard, who came to the window, and I asked him if he was hurt, and he replied that he had hurt his head. I then went round the train and looked at it and came back to my engine, and saw the guard of the goods train lying against our bunker. I had not seen him previous to this. I saw the body move, for at first I did not think it was a man, and stooped down and lifted his head, and then noticed his leg was off. He was conscious and told me he was very much hurt, and just at the time assistance came. It was foggy at Norbiton when we came through, but it was very much thicker at Malden. There were no fogmen out either at Malden Crossing or Malden Junction. My engine was a four-wheels-coupled trailing bogie tank engine, running chimney first, fitted with the vacuum automatic and hand brake, brake blocks on the four

coupled wheels. My brake was in good working order, the pressure gauge showed about 18 inches.

*William Stapley*, fireman, states:—I have nine-and-a-half years' service. I was fireman to driver Squires on Saturday, 23rd November, and did the same hours of duty. When approaching Norbiton with the 10.35 p.m. train from Kingston our signals were all off, and, after stopping at the station, we proceeded on our journey, the starting and advance signals being off. I saw the latter at a distance of about 50 yards. The Malden Crossing distant signal was off. I saw it about 40 yards away. I failed to notice the outer home owing to the thick fog. My mate shut off steam. I plainly saw the stop signal at Malden Crossing, and it was off, the Malden Junction distant signal on the same post being at danger. The gates were properly open for the train to pass. I then told my mate that the stop was off and the distant for Malden was against us. He replied, "All right, Bill." We had passed the level crossing between 30 and 40 yards when he applied the vacuum brake, and shortly after we struck the rear of the coal train, and I heard persons screaming in the train. I went round my side to see if anyone was out of the train. I saw nothing. My mate then called to me to come over his side. I did so and he told me to go to the station for assistance. I came to Malden and found the station-master's office locked up, and could see no porters about, and I, therefore, gave information to the booking clerk. When we passed the level crossing I should say we were running from 18 to 24 miles an hour. I did not see the signalman, and we ran over no fog signals between Kingston and Malden. After passing the level crossing the driver shut off steam and applied his vacuum brake, just after which we struck the rear van of the goods train. I saw one of the red tail lights of the goods train on my side (the right side of the engine). I saw nothing of the injured man until I returned from the station. I am quite confident that my remarks concerning the signals for Malden Crossing are correct.

*William Price*, assistant guard, states: I have about 8 years' service, 2½ years as assistant guard. I was rear guard of the 10.35 p.m. passenger train on 23rd November, and rode in the rear brake van. My hours of duty on that day were from 3.15 p.m. till 12.30 a.m. All was as usual at Norbiton when we stopped at the station. It was clear enough for me to see my mate's light. Whilst we were passing Malden level crossing our speed, I should say, was about 25 miles an hour, but I cannot speak with any certainty. The fog was so dense at the level crossing that I could see nothing. Just before (perhaps a few seconds) we struck the goods train in front of us, the driver slightly applied the vacuum brake, and immediately afterwards violently applied the brake, and then we struck the goods train at a speed of about 20 miles an hour, as near as I could judge. I saw no signals after the home signal at Norbiton, which was "off." When the collision occurred I had got up off my seat thinking the train was at Malden Station, and as soon as I had done so I was thrown across my van and knocked my head violently. Directly after the mishap I went back and advised the signalman at Malden Crossing of what had happened and protected the rear of my train. The train consisted of 14 vehicles, one with six wheels; the remainder were four-wheeled. There were 56 wheels braked out of 58. The brake was in good working order.



*J. Pearce*, guard, states: On Saturday, November 23rd, I joined the 9.35 p.m. ex Waterloo at Teddington, and rode "spare" in the front van and sat on the off side seat. We left Norbiton all right, but I cannot say as to the position of the signals; I was simply a passenger. I heard a bang as if of an explosion. I first thought we had run through the gates. Hathaway, the guard, said, "Good God, what has happened." I said, "Hold tight." I sustained no injury whatever. The train came to a standstill, the concussion knocking both our lamps out. I lighted mine and went out to search, and the first thing I saw was an oil tank leaning against a telegraph pole, and someone was bandaging the injured guard's leg, and I showed my lamp to help them.

*James Lavender*, fogman, states: I fog the Malden Crossing up distant signal, but I was not out on the night in question. I went to bed about 9.45 p.m., at which time there was no fog. I live close to the Malden Crossing distant signal.

*Williams Adams*, fogman, states: I fog the Malden Junction distant signal applying to the Kingston line. This signal is at the level crossing, but I was not out on the night in question.

I went to bed just before ten o'clock and saw no fog about then. I was not called out. I live between the level crossing and the station, about  $\frac{1}{4}$  mile away.

*[The undermentioned evidence was taken by the Railway Company; the witness was not able, on account of illness, to attend my inquiry.]*

*J. Hathaway*, guard, stated: I worked the 9.35 p.m. train, Waterloo to Kingston via Twickenham, and the 10.35 p.m. train Kingston to Waterloo on Saturday, the 23rd November, and left Kingston at 10.36, and Norbiton at 10.39. All signals were off at Norbiton. I was standing in the van after leaving Norbiton. Guard *J. Pearce*, who was riding spare to Waterloo, was sitting on the off side seat. Pearce called out "hold on" and bang we went into something. I was knocked down and the next I remember was the driver Squires calling to me to know if I was hurt. It was very foggy, and I saw no signals after leaving Norbiton. We were running at the usual speed. I heard no fog signals and no whistle. Assistant Guard Price was my mate, and I sent him back to protect the train. Price told me that the signalman said the driver had run past all signals. The driver said the distant signal was off. I do not know how it stood.

### Conclusion.

The evidence given in the case of this collision, which unfortunately had a fatal result, is of a conflicting nature.

Signalman Hester states that the goods train passed Malden Crossing cabin at 10.37 p.m., and that he sent the clearance signal for this train to Norbiton at 10.38 p.m. By his account all his electrical and mechanical appliances were in good working order. He must accordingly have replaced his distant, outer and inner home signals to danger, before he was able to send the clearance signal on his block instrument, and before opening the gates of the level crossing behind the goods train. He affirms that, after so replacing his signal levers, the electrical repeaters in his cabin for the distant and outer home signals went to "danger." He would not be in a position to again use his inner home signal until he had received from Malden Junction the clearance signal on his block instrument for the goods train. His distant signal was consequently also locked in the danger position. The outer home signal is free of interlocking, but Hester states this also he kept at "danger."

The passenger train left Norbiton Station at 10.39 p.m., and its departure signal was duly received by Hester, who proceeded to open the level crossing gates preparatory to the passage of the train. No further action was taken by him before the passenger train passed the cabin at a stated speed of about 30 miles an hour. Hester appears to have at once telephoned to Malden Junction cabin that the passenger train had passed his signals at danger.

The statements of the driver of the passenger train, Squires, and of his fireman, Stapley, are in unison.

They passed the starting and advance starting signals for Norbiton when these were in the "clear" position. They assert that they both saw a green light at the distant signal post for Malden Crossing, and that neither of them were able to see the light of the outer home signal. Squires also failed to see the inner home signal light, but on receiving positive information from his fireman that it was "off," he entered the next section. Both men admit that the distant signal for Malden Junction was at danger when they passed it. They give their speed at this distant signal as from 18 to 25 miles an hour. They were aware that there were no fogmen on duty between Norbiton and Malden Crossing.

Squires gave his evidence in a straightforward manner, but I am not inclined to attach equal weight to that of his fireman. Both men are of good character, and have clear registers.

I am persuaded that Squires honestly believed he did receive a clear signal at the distant post for Malden Crossing. But I prefer to believe Hester's story as regards the

position of this signal. I think a possible explanation is that Squires, in the thick fog, may have mistaken the Norbiton advance starting for the Malden Crossing distant signal, and that he failed to see the latter, which was really at danger, because he would in this case be looking on the wrong side of the road to notice it.

Squires considered himself justified in passing the outer home signal, though he could not see its position, on the ground that he had received a "clear" signal at the distant post. The Rule (No. 3) quoted in the descriptive portion of the report does not bear out this contention.

Rule 45 inculcates especial caution on the part of enginemen in foggy weather as regards the speed at which distant signals at danger may be passed, and specific instructions are given by Rule 46 to stop at a signal cabin in the case of the sudden appearance of fog and in the absence of fogmen. It is unfortunate that Squires did not act with the caution indicated, especially as regards the speed of his train.

I come to the conclusion that driver Squires is mainly responsible for this collision, in that he passed a stop signal without ascertaining whether its position warranted his doing so, and further was not displaying the special caution called for in foggy weather by the Company's instructions, as regards the speed of his train, after passing the distant signal for Malden Junction. I hold that fireman Stapley is responsible in a minor degree.

Their good characters, and the suddenness with which the dense fog came on, but for which the accident very probably would not have occurred, are extenuating points in their favour. Both men had been on duty about 6½ hours at the time the collision occurred.

I noticed indications, when I made an inspection of Malden Junction signal cabin, that the examination of the signalling instruments is not so thorough as would appear to be necessary. I mention the point, though it has no bearing on this particular accident, as the maintenance in the highest pitch of efficiency of all such electrical appliances is of first importance, and cannot be too strongly insisted upon by the Company.

I have, &c.,

J. W. PRINGLE,  
*Major, R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

## APPENDIX.

### PARTICULARS OF THE DAMAGE CAUSED TO THE ENGINE AND ROLLING STOCK.

Engine No. 42 of the passenger train.—Front buffer plate bent; springs in both buffer castings broken; main vacuum pipe bent; both sand boxes loose; right sand casting broken; pipe and sand rod bent; foot framing and main framing damaged.

No. 543, third-class brake.—End and two quarter lights broken.

No. 302, third.—Two quarter lights broken.

No. 546, third.—One quarter light broken.

No. 162, composite.—One quarter light broken.

No. 114, composite.—One quarter light broken.

No. 116, first.—Three quarter lights broken.

No. 98, second.—One quarter light broken.

No. 16, composite.—Two quarter lights broken.

No. 157, composite.—Two quarter lights broken.

No. 10,744, open goods.—End completely smashed—2 end boards, 2 axle boxes, 1 buffer casting, sheet rail guide and steel longitudinal broken, 2 buffer rods and axle bent; buffer rod missing.

No. 11,086, goods brake van.—Body and under-frame smashed up.

No. 7,272, South-Eastern and Chatham Railway waggon.—Completely smashed up.

No. 1,116, London, Brighton and South Coast Railway waggon.—Sole bar split, 2 headstocks and 2 buffer castings broken, diagonal split, and 2 buffer rods bent.

No. 10,148, Midland Railway waggon.—One coupling broken.

No. 452, Anglo-American oil tank.—Buffer rod bent.

No. 322, Anglo-American oil tank.—Sole bar, headstocks and 2 buffer castings broken, end pillars and stays damaged, wheels, axle guards, and brake work stripped.

No. 323, Anglo-American oil tank.—Two sole-bars and headstocks broken, end pillars and stays broken, wheels, axle boxes, and brake work stripped.

No. 324, Anglo-American oil tank.—Two sole-bars and headstocks, axle guard, diagonal, 2 buffer castings, end pillars, stays and axle boxes broken, diagonals bent and broken, axle box broken and wheels knocked from under.

### DAMAGE TO PERMANENT WAY.

Three sleepers, 8 chairs, and 1 fish plate broken.

Printed copies of the above Report were sent to the Company on the 16th January, 1902.

## NORTH-EASTERN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
January 21st, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 2nd December, the result of my inquiry into the circumstances under which a collision occurred at about 5 p.m. on the 24th November, near Castleford Station on the North-Eastern Railway, between a North-Eastern special passenger train and a Great Northern empty passenger train.

In this case, as the Great Northern train, consisting of an engine and five empty vehicles, was being crossed from the down to the up line by means of the cross-over road at the east end of Castleford Station, its two rear vehicles came into collision with the engine of a North-Eastern special passenger train, consisting of an engine, tender, and seven vehicles, which was running through the station on the down line.

Fortunately the greater portion of the Great Northern train had moved sufficiently far along the cross-over road to be clear of the North-Eastern train, and it was only the two rear vehicles of it, viz., a third-class carriage and a brake van, which came into contact with the buffer beam of the engine. The brake van, which was derailed, was very severely damaged, but the third-class carriage next to it had merely its step broken. The remainder of the train did not suffer at all. The guard of the Great Northern train, who was riding in the brake van at the time of the collision, was seriously injured.

The engine of the North-Eastern train had its right buffer beam broken, and its front bogie wheels were derailed, but in other respects it suffered no damage, and none of the other vehicles of the train nor any of its passengers were at all injured. The train was brought to a stand in about 380 yards, in which space a large number of chairs were broken by the derailed wheels of the engine.

The Great Northern train consisted of an engine and the following vehicles attached to it in the order given :—

1 carriage brake,  
2 composites,  
1 third-class carriage,  
1 carriage brake.

The engine of the North-Eastern train was a four-wheels-coupled bogie tender engine, fitted with the Westinghouse brake working blocks on the four coupled wheels and on the tender wheels, and with the usual hand brake.

The North-Eastern train consisted of the following vehicles attached to the engine in the order given :—

1 van	...	6 wheels, fitted with Westinghouse brake.
1 carriage truck	4	" only piped for " "
1 third-class bogie	8	" fitted with " "
1 third-class carriage	6	" only piped for " "
1 van	...	4 " only piped for " "
1 carriage truck	4	" fitted with " "
1 van	...	4 " fitted with " "

According to Board of Trade scale it would be calculated that the above train was equal to nine vehicles, and that two of these were unbraked though piped for the Westinghouse brake.

The damage to rolling stock is given in the Appendix ; that to permanent way consisted in the breakage of about 200 chairs.

*Description.*

Castleford Station, where this collision occurred, is a station on the North-Eastern Railway, between Normanton and York, and it is situated 2 miles 37 chains from the former.

There is a double line of rails running through the station in a direction which is approximately east and west, the down line being on the north side. At each end of the station are cross-over roads between the up and down lines, and the station signal box is at the west end of the station on the up side of the line.

The next signal box to the west of the Station box is Castleford High Town Gates box, usually known as the Gates box, distant 506 yards from the Station box, and the next box to that again is the Whitwood Junction box, distant 1,539 yards from the Gates box.

The gradient for a down train approaching Castleford from Whitwood Junction is at first a falling one of 1 in 484 for a distance of about 600 yards, and then a falling one of 1 in 3,153 up to the point where the collision occurred. Down trains approach and run through Castleford Station therefore on a very gently falling gradient.

The following are the distances from the Castleford Station signal box to the various points referred to in this Report, all of these being to the westward of that box :—

	Yards.
From the Station signal box to the Station box home signal ...	190
Ditto ditto distant signal ...	512
Ditto Gates box ...	506
Ditto ditto home signal ...	512
Ditto ditto distant signal ...	1,240
Ditto ditto fog apparatus ...	1,291
Ditto Whitwood Junction box ...	2,045

On a clear day a driver approaching Castleford Station on the down line obtains an excellent view of the signals worked from the Gates and Station signal boxes, but on the day on which the collision occurred there was a fog, which appears to have come on and gone off intermittently, and the density of which seems to have varied considerably at places comparatively near to each other.

Neither the signalman at the Gates box nor the one at the Station box had considered it necessary to ask for fogmen, but there can be no doubt that at the point where the collision occurred, which was 183 yards to the east of the Station box, the fog was exceedingly dense at the time of the accident.

#### Evidence.

*Henry Wood*, guard, states: I have been 14 years in the service of the Great Northern Railway Company, and have been passenger guard for nearly three years; previous to that I was parcels porter. I came off duty at 1.11 a.m. on the 24th November, and came on duty again at 12.45 p.m. on the same day to work till about 9 p.m. I was guard of the 4.20 p.m. train from West Gate, Wakefield, to Castleford. My train consisted of five carriages attached to the engine in the following order :—

One carriage brake,  
Two composites,  
One third,  
One carriage brake.

They were all six-wheeled vehicles. I was riding in the rear van. My train arrived at Castleford at 4.52, that is, 12 minutes behind time. On arrival at Castleford all the passengers left the train and the engine was uncoupled to run round. When it had done so, and was coupled on again, I transferred myself to the brake van at the other end of the train, and the train was pushed out of the station in order that it might cross over to the up side. I did not see the disc signal myself, but the driver pulled the train on to the up line. As I passed the disc signal I did not notice it, so I cannot say whether it was pulled off or not. I was on the off side of my brake van waiting to get out when we arrived at the platform. I felt the shock of the collision and felt the brake heel over; it threw me against the door and bruised my knee and hand. I felt that my carriage was derailed and felt it bump over the sleepers. Before I could get to the brake the train had been brought to a standstill. I was taken over to the porters' room, where my injuries were

attended to. I saw nothing of the train running into us before the collision occurred. At the time of the collision we were going very slowly, about five miles an hour I should say. My train was fitted with the vacuum automatic brake; it was in good order.

*Joseph West*, signalman, states: I have been 21 years in the service of the North-Eastern Railway Company, during nine of which I have been a signalman. Before that I was parcels porter. I have been employed for about three years in the Castleford High Town Gates box, and am employed there now. I came on duty at 6 a.m. on the 24th November to work until 6 p.m. I had not been on duty before for four days as I had been on leave. At 4.47 p.m. the Great Northern train from Wakefield to Castleford passed my box, and at 4.55 p.m. Whitwood Junction offered me the North-Eastern special train. I accepted it at once. The weather at the time was rather foggy, but I had no fogmen out. I did not ask for fogmen as the fog during the day had only been of a shifting character. There is a rule that during fogs I am not allowed to accept a train until I have received "Train out of section," signal from Castleford for the preceding train. I did not wait for this on this occasion, as I did not consider that the fog was a permanent one. I did not, however, lower my signals for the train when I accepted it. At 4.58 p.m. I received "Train entering section," signal from Whitwood Junction. I at once placed a fog signal at my down distant signal by means of the fog apparatus. I then went to the window to hear whether the train exploded that detonator. I heard the sound of the fog signal explode and I heard the driver whistling. I heard the train still approaching my box,

so I ran out of the cabin with four detonators to place on the rails, but I had only time to get two on. I also held up my red lamp as a danger signal, and called out as the driver passed me, "Hold on! stop!" but I did not see either the driver or fireman. The train went past at a speed which I estimate at about 50 miles an hour. It did not show any signs at all of pulling up. I then ran back into the cabin and sent "Train running away on right line" to the Castleford signalman. After I had accepted the train at 4.55 p.m., the fog seemed to get worse at the time the train ran past my box, but I did not think it was sufficiently foggy to prevent the driver seeing his signals. I think I could see about 30 yards at that time. The two detonators which I placed on the line near to my box both exploded. I never lowered my signals at all for the train, and never offered it to the Castleford box. I did not ask for fog signalmen as I did not consider that they were necessary.

*Thomas Limbert, states:* I have been 24 years in the service of the North-Eastern Railway Company, during the whole of which I have been a signalman. I am employed in the Castleford Station box where I have been just four years. I came on duty on the 24th November at 6 a.m. to work until 6 p.m. I came off duty on the 23rd at 10 p.m. The Great Northern train arrived at Castleford Station at 4.53 p.m. When the train arrived I placed the signals to danger behind it. After the train had come to a standstill and the engine had been uncoupled, I worked the engine round to the other end of the train by means of the two cross-over roads and up line. I gave the driver a disc for coming through the cross-over road at the east end of the station, and hand signal for that at the west end, and the engine coupled up again to the train. I then lowered the starting signal for the driver to propel his train beyond the cross-over road. When he had done so I placed the starting signal to danger and set the cross-over road for him. I then pulled over the disc signal for him to run on to the up line. While he was crossing over he was run into by the North-Eastern train. The first I heard about the North-Eastern train was receiving the signal from the Gates box that there was a train running away on the right line, that was at 4.59 p.m. I acknowledged the signal, but before I could do anything the train was at my box. I went to the window and held out a danger signal, and shouted to the driver, but did not appear to make any impression on him. I estimate the speed of the train when it passed my box at about 40 miles an hour. I could not discern anything to make me think that it was checking speed. I did not notice whether the brakes were on or not, but I think I should have noticed it if they had been on. At 4.58 p.m. I had received from the Gates box the shunt signal, and from that I knew there was a train following. All my signals were at danger. It was foggy at the time. About 10 minutes before the Great Northern train arrived it was fairly clear and I could discern my junction signals, but after that it got very much thicker. I had no fog signalmen out; I had not asked for fog signalmen as up to this time I had not thought they were necessary. After the accident the fogmen were sent out by the station-master. At the time the North-Eastern train ran past my box I do not think that the driver could have seen whether his signals were off or not. I did not receive the "Running away" signal from Gates box until I had set the cross-over road and pulled off the disc signal for the Great Northern train. I had not time to put any deto-

nators on the line myself. I did, however, hear one set of detonators go off at the Gates box at about the time the North-Eastern train must have been passing. I only heard one set, and am not sure whether it was one or two detonators. There seemed to be a lot of smoke and steam about the engine when it passed, but I could not see the engine, and I think, therefore, that the driver could have seen my red light. I did not send "Train out of section" signal for the Great Northern train.

*John William Maughan, driver, states:* I have been about 18 years in the service of the North-Eastern Railway Company, during seven of which I have been engine driver. Previous to that I was a fireman. I came on duty on the 24th November at 8.28 a.m. to work to 7.52 p.m. I came off duty on the 23rd November about 7 p.m. I was driving a North-Eastern special train from Normanton to Newcastle. My engine was a four-wheels-coupled bogie engine, fitted with Westinghouse brake working blocks on the four driving wheels and on the six tender wheels, and with hand brake working blocks on the six tender wheels. The brakes were in good order. We left Normanton at 4.52 p.m., 27 minutes late. It was quite clear when we left Normanton, but we ran into a dense fog at Altofts Junction. I eased the train up at that junction because I could not see the signals. I got a hand signal from the signalman at West Riding Colliery that all was right. I went on to Whitwood Junction; all signals were off for me there; I had no difficulty in seeing the signals at this point. The next signal I came to was the distant signal for the Gates box. I could not see this signal, but as I passed it I heard a fog signal go off. I had been on the fireman's side looking out for the signal, but when I heard the detonator go off I stepped back to the driver's side, applied the brake and shut off steam. When passing the Gates signal box I caught a glimpse of the home signal with the distant signal under it. I saw a green light, and I therefore took it that the signal was off. After I had heard the detonator explode at the distant I heard no other detonator at all, and I am quite sure no detonator went off when I passed Gates box. I am quite sure that if the signalman had been on the ground holding a red light or a red light from the window I must have seen him, but I did not do so. At the time I reached the home signal I was going at a speed of 25 miles an hour. If the home signal had been at danger I should not have been able to stop my train at it. The reason for this is that the rails were very greasy and my brake power was not sufficient. The reason of my brake power being insufficient was that the whole of the carriages on the train were not fitted with the Westinghouse brake, only four of the seven were so fitted. I kept the brake fully on from the time I passed the Gates distant signal until I saw that the Gates home signal was off. When I saw that the Gates home signal was off I released the brakes. I could not see the Castleford home signal when I passed it, but as I had seen the distant off I took it that the home was off. I saw the Castleford box as I passed, and I saw the signalman; he was standing against the levers; he was not making any signals to me. I am quite sure that I saw him. It was not very foggy at this point at that time. We ran on through the station. I knew nothing, however, until I felt the engine jolting. I then applied the brake and pulled up. I ran about 250 yards or so before I was able to pull up. Until I stopped I had no idea I had been in collision with anything. The two front bogie

wheels of my engine were derailed, but nothing else. At the time when the collision occurred we were going about 25 miles an hour. The fact of the rails being greasy prevented my bringing my train to a stand earlier. No damage was done to my train except to the engine. The two front wheels were still off the rails when I came to a stand. When I left Normanton, I thought that my brake power was sufficient for my train, at all events as far as York, and I made no complaint on the subject. At the Gates home signal I could only see one green light, and this I took to be the distant, and I therefore thought the home signal above it must be off also. I did not hear the signalman at Gates box shout to me, if he had done so I think I should have heard him. I did not see the outer home signal at the Gates box at all. I was on the driver's side of the engine as I went through Castleford station, that is the right hand side. I did not go over to the fireman's side at all while passing through the station. The joint inspector at Normanton told me that there were only three or four brakes upon the train, and that I had to be careful at York station. I had no conversation with the guard before leaving Normanton on the subject of the brakes. I am acquainted with the Company's rules about brake power on passenger trains.

*B. Steadman*, fireman, states: I have been about three years and nine months in the service of the North-Eastern Railway Company, during two-and-a-half of which I have been a fireman. I was on duty on the 24th November with driver Maughan, and I worked the same hours as he did. I had come off duty on the 23rd at 6 p.m. It was the first time I had ever been on this line and I did not know any of the points on it. I did not know any of the signal stations along the line, and did not know where any of the signals were placed. I looked for them but I did not see any of them. I remember hearing one detonator go off, and I think it was about 400 or 500 yards from where we came to a stand. We had only slackened down once before we exploded a detonator, and that was soon after leaving Normanton Station. As soon as we ran over the detonator the driver turned off steam and applied the brake. The brake seemed to act well on the train so far as I could see. Our train was not brought to a standstill, but I cannot say whether the driver took the brake off, as I was looking out on my side of the engine. I did not see any signal boxes at all on my side and I heard no more detonators go off. I saw the lights in Castleford Station when we ran through it; the steam was still turned off at that time, but I cannot say whether the brake was still applied. I did not know we had struck anything until the engine began to roll. My mate then put full pressure of the brake on and we stopped as soon as we could. My mate and I both got down to see what was wrong, and found the two front wheels were off the rails. I did not know then that we had run into another train. It was fairly clear when we left Normanton, and I saw two or three signals there, but later on the fog became denser and I could see none at all. The driver told me the signals were mostly on my side and I was to keep a look out and catch a glimpse of them. I did not see any signal at all on my side after we had passed over the detonator which exploded. I was on the left-hand side of the engine. After the collision and after we had come to a stand the driver remarked to me that he thought he had caught a glimpse of the signal off. I was put on this train

because the fireman who was booked for it did not turn up.

*John Wilson*, guard, states: I have been 22 years in the service of the North-Eastern Railway Company, during 15 of which I have been guard. I came on duty at 9.30 a.m. on the 24th November to work until 8 p.m. I came off duty on the 23rd November at 7.30 p.m. I was guard of the special train from Normanton to Newcastle. The train consisted of seven vehicles, which were attached to the engine in the following order:—

	Wheels.
1 van ... ..	6
1 Midland covered carriage truck ...	4
1 „ third bogie ... ..	8
1 N.S. third ... ..	6
1 Midland van ... ..	4
1 N.S. carriage truck ... ..	4
1 North-Eastern van ... ..	4

The first, third, fifth, and seventh vehicles had blocks on their wheels worked by the Westinghouse brake, the remaining three vehicles were piped for that brake. The brakes were in good order. I did not give the driver any directions myself; the assistant station-master at Normanton informed me he had given the driver information on that point. We left Normanton at 4.52 p.m., 27 minutes late. When we left Normanton it was not foggy. At Altofts Junction I noticed the brakes were slightly applied, but I saw nothing of the signals there. After that I saw nothing more of the signals, though I was looking out for them. I heard no detonator go off at all. I did not see any signals after leaving Normanton, though I was looking out for them, and if they had been visible I must have seen them. I was looking out when we passed Castleford Gates box, but I could not see the box itself. I was also looking for the Castleford Station box, and that I was not able to see. My train did not slacken down again before reaching Castleford Station; it did not slacken down near Castleford Gates. I am quite sure on this point. I am quite sure that if the brake had been applied I should have heard, and I am quite positive that it was not applied. I do not think that we exceeded 15 miles an hour the whole of the journey. We were running at this speed through Castleford Station. I knew nothing whatever about the collision until after my train had come to a standstill. I then heard that the wheels of my engine were off the line. I went back to protect my train, and I then heard what had happened. I noticed the brake applied as we passed through Castleford Station; it seemed to act very well, and it stopped the train in the usual way. I fully realized when we left Normanton that we were starting without the regulation proportion of brake power. The explanation I give is that I could not use the vacuum brake because the first and third vehicles were not fitted for it. I did not make any protest against starting without sufficient brake power.

*Albert Mundy*, assistant foreman, states: I am ticket collector and assistant foreman at Normanton Station. I was acting as station-master at Normanton station on the afternoon of the 24th November. I remember the special train for Newcastle being marshalled. I am acquainted with the Company's rules as to the amount of brake power which each passenger train should be provided with. This train had not quite the right amount of brake power. It was only just before the train started I noticed that it was half



a vehicle over the margin. I had no vehicles available with which to correct the vehicles on the train, so I told the driver that he had three unbraked vehicles. I did not say anything to the guard on the subject, and he did not say anything to me. I thought I was justified in letting the train go as it was, and I took the responsibility of doing so. I admit I ought to have taken more steps to correct the brake power.

*John Beeton*, driver, states: I have been 30 years in the service of the Great Northern Railway Company, during 15 of which I have been a driver. I came on duty at 3.15 p.m. on the 24th November to work until about 11.30 p.m. I had previously come off duty at 1.45 a.m. on the 24th. I was in charge of the 4.20 p.m. train from Wakefield to Castleford. After arriving at Castleford my engine uncoupled and was worked round to the other end of the train. After this the starting signal was lowered for me, and I propelled my train forward till I was clear of the cross-over road. I could not see the starting

signal before we started, but I was informed by the signalman that it was off, and as we passed it my fireman saw it. When I got clear of the cross-over road I gave a crow whistle, and then the points were pulled over, the disc signal given me, and I drew my train across the cross-over road towards the up line, and, when doing so, a North-Eastern train arrived on the down line, and ran into the rear portion of my train. The fog was so dense at this time that, although the North-Eastern train passed me on the next line, I could not see it. Judging from the sound of the North-Eastern train I should say it was running at least between 30 and 40 miles an hour. The collision gave a jerk to the train, but it did not stop it dead; we went on for five or six yards.

*Mr. James Yorke* states: I am station-master at Castleford. On the 24th November, about 5 p.m., I was in my house close to the station. I distinctly heard two detonators go off one after the other, and immediately afterwards I heard a train run fast through the station.

### *Conclusion.*

The Great Northern train concerned in this collision arrived at Castleford on the down line at 4.53 p.m.; this train does not proceed further than Castleford, and it subsequently returns from that station as an up train. On its arrival the engine, having been uncoupled, ran round its train by means of the cross-over roads at the ends of the station; as soon as the passengers were discharged the train was backed along the down line until it was clear of the cross-over road at the east end of the station, and it was then drawn forward towards the up line by means of that cross-over road. Before the rear of the train was quite clear of the fouling point between the down line and the cross-over road, the North-Eastern train dashed through the station, and the collision above described occurred.

The North-Eastern train had started from Normanton at 4.52 p.m., which was about 25 minutes after its right time. Its driver, *John Maughan*, states that the weather was clear when he left Normanton, but that at Altofts Junction, a short distance from Normanton, he ran into a thick fog, and had to ease up in consequence; at Whitwood Junction, however, he had no difficulty in seeing that the signals at that junction were off for him.

When approaching the Castleford Gates box the fog was again thicker, and he was unable to see the Gates distant signal, but he heard, as he admits, a detonator explode under his engine at that point, so he knew that that signal was at danger, and he states that he accordingly shut off steam and applied his brakes.

When he reached the Gates box *Maughan* states that he was travelling at a speed of 25 miles an hour; he admits that with that speed he could not have brought his train to a stand at the home signal if he had found it against him, and this he says was due to the fact of there not having been sufficient brake power on the train; he saw, however, a green light, which he took to be the distant signal for the Station box, and he consequently concluded that the home signal for the Gates box, which was above the distant signal for the Station box, must be off also; *Maughan* denies that any detonator went off under his engine when passing the Gates box, or that the signalman showed him a red light; he accordingly released his brakes, and ran on to Castleford Station.

When approaching Castleford Station *Maughan* admits that he could not see the Station box home signal, but having, as he thought, seen the distant signal off, he concluded that the home signal must be off also, and he accordingly ran through the station at a speed which he estimates at 25 miles an hour. The fog at this time was so dense at the point where the collision occurred that he never saw the train with which he collided; he felt his engine checked, so he at once took steps to bring it to a stand; he then discovered that the front wheels of the engine were derailed, and he subsequently ascertained that it had been in collision with the Great Northern train.

The fireman, *Steadman*, corroborates *Maughan's* evidence, but he states that after the detonator exploded at the Gates distant signal he himself could not distinguish any

more signals on the line, though, in accordance with Maughan's instructions, he was specially looking out for them.

The guard, Wilson, can give no evidence at all about the signals. He corroborates the driver's statement that the brakes were slightly applied at Altofts Junction, but he positively asserts that they were not applied again before reaching Castleford Station, and he also asserts that the train never slackened speed when approaching the Gates box. He does not however think that the speed of the train ever exceeded 15 miles an hour after leaving Normanton; but, as it had travelled from Normanton to Castleford—a distance of 2 miles 37 chains—in seven minutes, including a slack at Altofts Junction, this estimate is clearly inaccurate.

Signalman West, who was on duty in the Gates box, positively asserts that neither his distant nor his home signal were ever lowered for the North-Eastern train. When he accepted that train he placed one detonator on the line near his distant signal by means of his fog apparatus; he heard that detonator explode, but as he thought from the sound of the train that it was approaching his box too quickly he ran down and placed two more detonators on the line at that point; he also held up a red light and shouted to the driver as he ran past. The detonators, he states, both exploded, but the train ran past his box at a speed which he estimates at 50 miles an hour without showing any signs of pulling up. West at once sent to the Castleford Station box the signal denoting "Train running away on right line." West had never offered the train to the Station box, as he had never received the "Train out of section" signal for the Great Northern train.

Signalman Limbert, who was on duty in the Station box, states that the North-Eastern train was never offered to him at all, and that the first he knew of its approach was the receipt of the above-mentioned signal from the Gates box. At that time all his signals were at danger, and he had already pulled off the disc signal for the Great Northern train to cross from the down to the up line. He at once, therefore, went to the window and held out a red light, but the train, which arrived immediately after the receipt of the signal, passed his box at a speed which he estimates at 40 miles an hour.

There can, in my opinion, be no doubt that the signals both at the Castleford Gates box and at the Station box were at danger when the North-Eastern train passed them, and driver Maughan does not seriously dispute this fact. Considering that, as Maughan himself admits, a detonator exploded when he passed the Gates distant signal, showing him that that signal was at danger, it was incumbent on him to have had his train well in hand ready to stop at the home signal. His excuse for not doing so, viz., that he had not sufficient brake power, will not hold water, for the distance between the distant and home signals is 728 yards, and, though the brake power on his train was not as great as it should have been, it was ample to have brought his train to a stand in that distance.

Again, even according to Maughan's own account, the view which he got of the Gates home signal was a very uncertain one, and his fireman was unable to see it at all. Under those circumstances he acted very recklessly in running on without ascertaining whether it was off for him. The same remark applies to his passing the home signal at the Station box, which he admits he did not see at all.

Maughan and his fireman both dispute the fact of any detonators having exploded under their train at the Gates box, but signalman West's evidence on this point is corroborated by that of the station-master at Castleford, who asserts that just before the North-Eastern train arrived he distinctly heard two detonators explode.

It is therefore clear that this collision, which might have had most serious results, was due to the fact of driver Maughan not having exercised due caution in approaching the Gates box, and to his having run past both the Gates box and the Station box without ascertaining that the signals were off for him; the responsibility for this accident must therefore rest on him. At the time of the collision he had been on duty for eight-and-a-half hours, but it must be noted that his booked hours for the day were 11 hours 39 minutes; this is longer than a driver should be called upon to work, and the Company's attention should be drawn to this point.

It is, I think, probable that both signalman West in the Gates box and signalman Limbert in the Station box committed errors in judgment in not asking for the services of fog-men on this day; but, as it is clear from the evidence that the fog on this occasion was of a very variable and shifting nature, it is impossible for anyone who was not actually on the spot at the time to form a definite opinion on this point, and the signalmen must therefore be given the benefit of the doubt.

The only other point in connection with this accident which appears to call for remark is the brake power of the North-Eastern train; this train was, as above stated,



according to the Board of Trade scale equal to nine vehicles, and, as it was running more than 10 miles without a stop, the Company was authorized to have on it only one-and-a-half unbraked vehicles; its unbraked vehicles, according to the same scale, were equal to two, *i.e.*, half a vehicle in excess of the authorized allowance.

This fact appears to have been clearly recognized both by foreman Mundy, who was acting on that day as station-master at Normanton, where the train was made up, and by guard Wilson, who took over charge of the train from him. Both of these officials are to blame for allowing the train to start from Normanton when its composition was not in accordance with the Company's rules, which are in strict agreement with the Board of Trade requirements.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
*Lieut.-Col., R.E.*

#### APPENDIX.

##### PARTICULARS OF DAMAGE TO ROLLING STOCK.

North-Eastern engine, No. 1,910.—Right buffer beam broken.	1 door light, 4 steps, 2 axle boxes, 2 axle guards broken; step irons broken and bent; 4 axle guards and 1 axle bent.
Great Northern brake third, No. 1,419.—1 sole, 1 side rail, 4 side panels, 3 door stiles, 4 door pillars,	Great Northern third, No. 1,300.—1 step damaged.

Printed copies of the above Report were sent to the Companies concerned on the 13th February, 1902.

#### NORTH EASTERN RAILWAY.

Railway Department. Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
December 27th, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of 9th December, 1901, the result of my inquiry into the circumstances under which an accident occurred at about 5.7 p.m. on the 3rd December, near Bardsey, on the North Eastern Railway, to a passenger train belonging to that Company.

In this case, as the 4.32 p.m. down express train from Leeds to Newcastle, consisting of an engine, tender, and six vehicles, had reached a point about 400 yards from Bardsey Station, a derailment occurred, causing all the vehicles of the train, with the exception of the engine, to leave the rails and to foul the up line.

The tender became uncoupled from the vehicle in rear of it, and was dragged forward by the engine, its wheels taking the road again at a cross-over road close to Bardsey Station; the engine and tender then came to rest about 150 yards ahead of the remainder of the train.

The train consisted of the following vehicles attached to the engine in the order given :—

						Wheels.
One brake composite ...	...	...	...	...	...	8
One brake third ...	...	...	...	...	...	8
One composite ...	...	...	...	...	...	8
One composite ...	...	...	...	...	...	8
One third-class carriage ...	...	...	...	...	...	8
One brake third ...	...	...	...	...	...	8

The first four vehicles were, after the accident, found to have come to rest in the six-foot way, between the up and down lines; they were standing on their wheels, but two of them were leaning slightly over towards the up line; the fifth vehicle was also entirely derailed, but was standing partly in the six-foot and partly in the four-foot; the end vehicle was across the down line, its rear bogie being on the rails. All these

vehicles were very severely damaged ; they were not uncoupled, but they were jammed together, and some of them were buffer-locked.

Fortunately no loss of life occurred, but the guard of the train was shaken and bruised, and the Company has since received complaints from seven passengers of personal injuries received.

The engine of the train was a four-wheels-coupled tender engine with bogie in front ; it was fitted with the Westinghouse automatic brake working blocks on the four coupled wheels and on the six wheels of the tender ; it had also the usual hand-brake working the blocks on the tender wheels.

The train also was fitted throughout with the Westinghouse automatic brake working blocks on all its wheels.

The brakes are reported as having been in efficient order.

Details of damage done to the rolling stock and permanent way are given in the Appendix.

### *Description.*

Bardsey Station, near which this accident occurred, is a station on the Cross Gates-Wetherby branch of the North Eastern Railway ; this branch forms a portion of the Company's route between Leeds and Harrogate. The line was originally constructed in 1871 as a single line, but it was doubled during 1900, the down line being then added to it. At the point where the accident occurred the direction of the lines is approximately north and south, the down line, on which the train to which the accident occurred was running, being on the west side.

The next station to Bardsey in the up direction, *i.e.*, in the direction from which the down train was approaching, is Thorner, and the distance between these two stations is exactly 2 miles. At Thorner Station the line is nearly level, but immediately after leaving that point a falling gradient commences, which continues the whole way to Bardsey Station ; this gradient varies from 1 in 70 to 1 in 94, with the exception of one length of a quarter of a mile, in which the gradient is only 1 in 292. The derailment occurred when the train was about 400 yards from Bardsey Station ; it had therefore been running down a somewhat severe falling gradient for a distance of  $1\frac{3}{4}$  miles.

As regards the curvature of the line : for the first mile after leaving Thorner Station the curves are very slight, but after that for a distance of half a mile there are reverse curves of 20 and 36 chains radius respectively. There is then a straight portion, 8 chains in length, and then a second set of reverse curves commences, the first of which is a right-handed one of 25 chains radius and 16 chains in length, and the second a left-handed one of 20 chains radius and 10 chains in length. These reverse curves are provided with check rails, but in neither of them is there any straight between the right and left-handed portions. The derailment occurred a short distance before reaching the termination of the right-handed curve of the second set of reverse curves.

The train was therefore running on a right-handed curve, and it was derailed to the right of the line on which it was running, that is, on the inside of the curve.

On account of the above curves there is a speed restriction of 25 miles an hour over this portion of the line, and on the day on which the derailment occurred, there was also a speed restriction on the south side of Thorner Station on account of repairs which were being carried out ; down trains therefore had to slacken down shortly before reaching that station.

The permanent way of the line on which the train was running was laid with new material about a year and a half ago ; the rails weighed 90 lbs. to the yard, were 30 feet in length, and were connected by fish plates, weighing 26 lbs. the pair ; the chairs weighed 40 lbs. each ; the sleepers were of the usual description, and there were 11 of them to each rail.

The first marks on the line connected with the derailment were at a point which, for convenience of reference, will be called A, situated about 60 yards before reaching the termination of the right-handed curve on which the train was running ; at this point a chair under the left-hand rail had a slight mark upon it on the inside of the rail, and just ahead of this point there was a small depression of the left-hand rail. Similar marks, growing gradually more defined, continued on the inside portions of all the succeeding chairs under the left-hand rails, but no marks of any sort appeared near the right-hand rails for about 15 yards. At that point (B) marks commenced to appear on the outside portions of the chairs under the right-hand rail, and from that point forward the chairs of both rails were either badly marked or broken, a vehicle having clearly been derailed

on the inside of the curve. Near B, wheel marks also commenced on the sleepers inside the left-hand rail, and they shortly afterwards commenced outside the right-hand rail. The breakage of chairs and marking of sleepers continued up to the point where the check rail of the left-hand curve commenced. The end of this check rail was broken off, and showed signs of having received a severe blow. From this point forward the permanent way was practically destroyed, the right-hand rail being completely overturned. The train came to a stand in the six-foot way, as described above, with its rear vehicle just 100 yards ahead of the point A, where the first marks of derailment occurred.

### *Evidence.*

*William Young*, guard, of Newcastle, states: I have been 25 years in the service of the Company, during 12 of which I have been a passenger guard. Previous to that I was employed as a passenger porter. On the 3rd December, I came on duty at 9.30 a.m. to work till 7.30 p.m. I came off duty on the 2nd December at 7.45 p.m. I was in charge of the 4.32 p.m. Leeds to Newcastle express. My train consisted of the following vehicles attached to the engine in the order given:—

	Wheels.
1 brake composite .....	8
1 brake 3rd .....	8
1 composite .....	8
1 composite .....	8
1 3rd .....	8
1 brake 3rd .....	8

All the vehicles were fitted with the Westinghouse automatic brake working blocks on all wheels of the train. The brake was in excellent order. We left Leeds at 4.46 p.m., that is, 14 minutes late. I cannot tell the time at which I passed any of the intermediate stations between Leeds and the spot where the derailment occurred. The first check that I remember being made in the speed of the train was at Cross Gates, at the Junction, at which point we slackened down to about ten miles an hour. The next check that took place was, I think, at Thorner. I do not know the precise cause of the check, but I thought it must be there, as that is a spot where speed has to be reduced. I think this check reduced our speed to about 20 miles an hour. I do not think our speed between Leeds and Cross Gates exceeded 25 miles an hour. Between Cross Gates and Thorner I estimate our speed at about 35 miles an hour. After the check at Thorner I estimate our speed at somewhere about 25 miles an hour, and it continued at this rate up to the time of the derailment. I was travelling in the rear van of the train, and at the time of the derailment I was walking about the van shifting parcels. The first I knew of the accident was being thrown down and slung to the extreme end of the van amongst the parcels. I think I experienced a second shock, after which I was able to get up and go out of my van. I found that the whole of my train was derailed on the side towards the up line and that the vehicles were mostly leaning over in that direction. The passengers were then scrambling out of the train. The engine and tender were not off the line when I saw them, but all the other vehicles were, and were coupled together. When I first saw the train, the engine and tender were on the rails about 150 yards ahead of the train. The remainder of the train was not uncoupled but the vehicles were jammed up together and some of them were buffer-locked. I sent my assistant back to protect the rear of my own train. When I got forward I found that the up line was already blocked and that the up train had been brought to a stand at

Bardsey platform. I myself was slightly injured by the accident, but none of the passengers appeared to be so, and none of them made any complaints to that effect. I could not form any opinion as to the cause of the derailment. When the check occurred at Cross Gates I noticed the automatic brake was slightly applied and it appeared to act properly—the same occurred at Thorner station. Besides these two occasions I did not notice any other occasion between Leeds and the scene of the accident at which the automatic brake was applied. I do not think that the automatic brake was applied after we passed Thorner, but it might have been applied gently without my noticing it. There are curves on the line between Thorner and the point where the accident occurred. I do not very frequently travel over this line, and this is only the second time I have been over it; still I was well acquainted with the curves between Thorner and Bardsey. I consider that we travelled fairly smoothly round the curves on this occasion, and I was in no way alarmed by the speed at which I went round them. Previous to the derailment itself I had no cause for alarm. The time at which the derailment occurred must have been about 5.7 p.m.

*William Skerry*, assistant guard, states: I have been over 16 years in the service of the Company, during four of which I have been an assistant guard. Previous to that I was employed as a porter. On the 3rd of December I came on duty at 9.30 a.m. to work till 7.30 p.m. I came off duty on the 2nd December about 8 p.m. I was the assistant guard in the 4.32 p.m. train from Leeds to Newcastle, and I was riding in the second guard's compartment from the engine. We left Leeds about 4.46 p.m. The first time I remember the train being checked was a slight check at Thorner. Between Leeds and Thorner I estimate our speed at between 30 and 40 miles an hour. There was no other check after Thorner until the accident occurred. After Thorner I estimate our speed at about what it was previously, viz., about 30 miles an hour. I noticed that the Westinghouse brake was applied slightly at Thorner, but I am confident that after that it was not employed at all. I know this line fairly well; there are two rather sharp curves between Thorner and the scene of the accident. I believe that there is at present a speed restriction of 10 miles an hour at Thorner, and again before reaching Bardsey there is a speed restriction of 25 miles an hour. We had reached the point where the speed restriction of 25 miles an hour commences some way before the accident occurred, but in my opinion speed was not reduced to 25 miles an hour. I estimate our speed over that portion at between 30 and 40 miles an hour. At the time the derailment occurred I was looking out of my "ducket" window towards the front of my train on the left side. The first I knew of the derailment,

was seeing the front end of the van in front of me give a lurch towards the left. I then noticed that the front van gave one or two violent jumps. I jumped up and pulled the Westinghouse tap right down. When I first jumped up I noticed that the gauge was standing at between 65 and 75. After pulling the handle I noticed that the gauge went down to 45. I then noticed that the air ceased to flow altogether, and the needle fell to zero. I saw nothing more that happened to the front van. As soon as I got up on my feet to apply the brake my vehicle left the road. My vehicle pitched and rolled desperately for a matter of about 30 yards, and then came to a stand. It was derailed on the right-hand side of the road, but leaning over towards the left. I cannot say what happened at that time to any of the vehicles behind me. Neither did I see anything that happened to the engine and tender. When I got out of my van I saw that the engine and tender were about 150 yards ahead of the rest of the train. The whole of the train was derailed, and about three carriages were leaning over, but none of it was uncoupled. The carriages were jammed up altogether. I was not injured at all. The train seemed to go very smoothly when crossing the bridge, but after crossing the bridge it seemed to go in a downward direction, but we had gone about 40 yards beyond this point before I noticed the van in front of me derailed. Previous to this point I had not noticed any unusual roughness in travelling. I recollect distinctly that something seemed to urge me to be in readiness, and on that account I was sitting near the regulator. On one occasion I put up my hand to be in readiness to work the regulator, but I withdrew it again to clean the window so as to give me a clear view. There is no doubt it was the speed of the train which prompted me to do this. I have travelled twice each way on this train previously. I think our speed on this occasion will have been nearly the same perhaps as it was on the two previous occasions. After the derailment I went forward and found that the up line was blocked. I then went back and met the rear guard, who instructed me to go and protect the rear of my own train, which I did. One passenger informed me that he was a little shaken, but that was the only complaint I received. The opinion I formed as to the cause of the accident was the soft nature of the embankment, and the speed of the train. I formed this opinion from the fact that I walked down the embankment, and I noticed that it was all clay, and that it was very wet. I did not notice the times of passing any of the intermediate stations, nor did I notice the time the derailment occurred. I think it is quite possible that the front wheels of the van in front were derailed towards the inside of the line, and on that account the top of the van was slewed over towards the left-hand side of the line. I cannot say for certain whether steam was ever turned off after leaving Thorner, but I did not notice any indication of it. I did not notice anything wrong with the tender before I noticed the vehicle in front of me being derailed.

*Thomas Charlton*, driver, states: I have been 46 years in the service of the Company, during 33 of which I have been a driver. I came on duty on December 3rd at 9.50 a.m. to work till 7.45 p.m. I had not been at work previously for nine days. I was driving the 4.32 p.m. train from Leeds to Newcastle. My engine was a four-wheels-coupled tender engine with bogie in front. It was fitted with Westinghouse automatic brake working blocks on the four coupled wheels and

on the six tender wheels, and with a hand brake working blocks on the six tender wheels. My brakes were in middling order between Newcastle and Leeds. I had driven the same engine from Newcastle to Leeds that morning, and on arrival at Leeds I wrote a report which I sent to the locomotive foreman when passing the shed, saying, "Engine and tender brakes to be taken up if possible before working the 4.32 train back to Newcastle." About 2 p.m. two fitters came to my engine and they took up the tender brake, but they could not deal with the engine brake, as it was not sufficiently worn to take up at the bolt holes. As regards the tender brake, it was in good order when I left Leeds. The engine brake, however, was not as good as I have had it, but I consider that my brake was quite efficient when I left Leeds station. The brake power was amply sufficient to control my train, and I never had any difficulty in controlling my train with it. We left Leeds at 4.45 p.m.—13 minutes late. The first slack took place at Waterloo, where we slackened down to 15 miles an hour. The next slack took place at Cross Gates, where I slackened down to 25 miles an hour. After leaving Cross Gates I increased speed to from 40 to 45 miles an hour. Our next slack was at Thorner Bank, where I slackened down to about seven miles an hour. After passing the Thorner check I increased my speed again to about 40 miles an hour. My next slack was when approaching Bardsey curve, before reaching the Bardsey distant signal. I slackened up there in order to prepare for reaching the place where there is a "25 miles an hour" limit. When passing the distant signal I estimate our speed at 23 miles an hour. I never increased speed again till the derailment occurred, and I estimate my speed therefore at the time of the derailment at about 23 miles an hour. I do not know what were the times at which I passed any of the intermediate stations, but the time at which the engine stopped at Bardsey was 5.8 p.m. This was the time at which the engine was brought to a standstill after the derailment. The Thorner distant signal had been against me, but that and Cross Gates distant were the only two which had been against me. I had shut off steam at the top of Thorner Bank; it was then on again for a few yards after I sighted Thorner advance signal, and I then shut it off again. I did not turn on steam again until after the derailment occurred. I first applied the automatic brake at Waterloo, then at Cross Gates, then at the Thorner distant signal, and then about 500 yards before reaching the Bardsey distant signal. I applied it again shortly after passing the Bardsey distant signal and checked the train by means of the brake when passing over the bridge. When the train was passing over the bridge I was looking back and watching it, and while it travelled a train length beyond the bridge. The train appeared to me to travel over the bridge quite correctly. The first intimation that I received of the accident was feeling that my tender was vibrating—jumping up and down. It suddenly then became derailed. I also felt sure that something was going wrong with the train, although I could not actually see it. At the same moment I saw a train approaching on the up line. When the tender became derailed it uncoupled itself from the leading vehicle of the train. I then got hold of the whistle to draw the attention of the signalman, and in a short distance the tender was again placed on the rails. I opened the regulator and ran forward in order to try and stop the up train, repeating the whistle all the way until I had passed the engine of the up express. I then came to a stand. When I met the up train it had

not reached Bardsey Station. The up train was not travelling fast at the time I met it. My engine was not derailed at all. I do not think that the derailment originated with the tender. I think that some of the train was derailed first, and that that caused the derailment of the tender. I think that the tender was riding badly before it left the rails, and that therefore something had happened to the train in the rear to cause it to do so. After my engine crossed the bridge it travelled quite smoothly. The brake was actually applied at the time I noticed my tender jumping. After the tender commenced to jump I applied my brake fully, but there was no pressure. I have been 13 times recently over this line, so I know it pretty well. I know the curves well between Thorner and Bardsey, and I know there is a speed restriction of 25 miles over them. I have always adhered to that speed restriction when running over them, rather within if anything. The curves are not of the best, that is why I take the care. I prefer to go at a little less than 25 miles an hour over them. My brake acted quite well on the occasions on which I applied it. When my engine came to a stand we had passed the down starting signal. The tender was pulled on the rails again at the through shunt. Owing to the darkness of the night I can throw no light on the ultimate cause of the derailment. I have been 27 years driving express trains on the North-Eastern Railway. It is part of my duty to be a judge of speed so as to arrive at my destinations at the proper time. I have never been reported for not adhering to speed regulations, and I consider I am a pretty good judge of speed. I have worked an express train for 17 years (a Leeds to Newcastle express) over a section where there is a speed recorder, and I have never had any complaint made against me as regards excessive speed.

*John Harker*, fireman, states: I have been about 11 years in the service of the Company, during seven-and-a-half of which I have been a fireman. I was on duty on the 3rd December with driver Charlton, and worked the same hours as he did. I think I came off duty on the 2nd December at 6.10 p.m. I was on the 4.32 p.m. train from Leeds to Newcastle. After leaving Leeds our first slack was at Waterloo. I think we slackened down to about 25 miles an hour. Our second slack was at Cross Gates, where we slackened down again to about 25 miles an hour. I cannot say at what speed we had been running between Waterloo and Cross Gates. Our next slack was at Thorner, where we went very slow indeed. Our next slack down was at the restriction board before reaching Bardsey distant signal, and to my knowledge we did not increase speed again until after the derailment occurred. I should say that we were going at 25 miles an hour over the portion at which there is a speed restriction, and that was the speed of the train at the time of the accident. At all the places where speed was checked the brake was, to the best of my knowledge, applied. Steam was turned off when we slackened at Thorner, and was then turned on again, and was turned off again in a very short time. This was before we reached the restriction board, and steam was never turned on again up to the time at which the derailment occurred. The first I knew of the derailment was from the oscillation of the tender off the road. I cannot say that any of the rest of the train was derailed. I cannot give any further particulars as to the position of the tender. At the same time I saw an up train and I immediately moved to the driver's side and moved the whistle

violently until the train came to a stand. A short distance before we reached the station the tender wheels had got on to the line again. Previous to the accident the engine seemed to run round the curves all right. I noticed nothing unusual in the speed of the train or in the condition of the road. I can throw no light on the cause of the derailment. I cannot state the times at which we passed the different stations. The brakes appeared to act all right whenever they were applied. When I moved across the engine to apply the whistle I noticed that the automatic brake was fully applied.

*Christopher Burnett*, signalman, states: I have been in the service of the Company about 13 years, for five of which I have been employed as a signalman. Previous to that I was employed as a platelayer. I am employed as a signalman at Thorner station, and I came on duty at 4.30 p.m. on the 3rd December. I remember noticing the 4.32 p.m. train pass my signal box. I accepted the "is line clear" signal at 4.57 p.m. from Scholes. I received the "train entering section" signal for it at 5.0 p.m. The train reached my box at 5.5 p.m. The distant signal had been at "danger" for the train, but the "home" and "starter" were both off for it. The "distant" signal was at "danger" on account of the temporary speed restriction near my station. The train was quickening speed when it passed my box, and I estimate its speed at that time at 20 miles an hour. I looked up at my clock when the train passed my box, and 5.5 was the correct time of its doing so by my clock. At 5 p.m. I offered the train to Bardsey, and he accepted it at once; at 5.5 I sent "train entering section" signal to Bardsey. I noticed nothing unusual about the train when it passed my box. I think that 20 miles an hour is about the usual speed at which trains pass my box since the speed restriction has been put on. My clock is corrected by telegraph every morning at 10.0 a.m. It has a tendency to gain a little, about a minute a week.

*Robert Whitelock*, signalman, states: I have been nearly eight years in the service of the Company. I passed as a signalman nearly five years ago. I am employed as a signalman porter. I came on duty as signalman in Bardsey Station cabin at 4.30 p.m. on the evening of the 3rd December. I remember the 4.32 p.m. train being offered to me by Thorner at 5 o'clock. When I made the entry I looked up at the clock and saw that this was the time. I accepted the train at once. I received the "train entering section" signal for it at 5.4 p.m. I looked at the clock again on this occasion, and that was the right time. When I first saw the train approaching my box it was distant about 400 yards. I noticed there were sparks flying from the wheels, and I thought that something unusual had occurred. This happened at about 5.7 p.m. I walked across the cabin and was thinking about putting the signals on the up line to "danger," and I then heard the engine whistle, upon which I did at once place them to "danger." I offered the train to Collingham at 5.4, and at 5.7 I sent "train entering section" for it. I sent this "train entering section" signal immediately that I first saw the train—that is 400 yards from my box. I looked at the clock when I sent this latter signal and it was just short of 5.7 p.m. From this I say that the accident occurred at just about 5.7 p.m. At 5.4 I had received "train entering section" for the up train. The "distant" signal was off when the up train passed it. The

"home" signal was off also when it came past it, but the "starting" signal was at "danger," and the driver brought his train to a stand at that. My clock is checked every morning at 10 o'clock; it sometimes requires altering—about a minute a week. It generally keeps good time.

*Charles Garrett* states: I have been about 15 months in the service of the Company. I am employed as a signal porter. I was on duty at Scholes Station on the 3rd December. I remember the 4.32 p.m. train from Leeds passing my station. The train appeared to pass my station at the usual speed, but I cannot say what that speed was. The train passed my station at 5.0 o'clock, and I sent "train out of section" signal for it at 5.1. I offered the train to Thorner at 4.58 p.m., and it was at once accepted by him. I sent "train entering section" signal for it at 5.0 o'clock, and I received "train out of section" signal from Thorner for it at 5.5 p.m. When I inserted the times of these signals in my book I looked at the clock on each occasion. My clock is a good one. We receive the time at 10 o'clock every morning, and I think I have only had to alter it once in the last three months.

*John Pearson*, driver, states: I have been 41 years in the service of the Company, during 31 of which I have been a driver. On the 3rd of December I was driving the 3.43 train from Leeds to Harrogate. In the last nine weeks I have run 13 times over the line from Leeds to Harrogate, so I know it fairly well. I know that between Thorner and Bardsey there are some curves over which there is a speed restriction. When I ran over these curves on the 3rd December I noticed nothing unusual about them. I ran over these curves at 25 miles an hour as near as I can say. I experienced no inconvenience when running round them. Nothing occurred to make me think that there was anything wrong with the permanent way. I can make no suggestion as regards the derailment of the 4.32 train. I know the bridge which we pass over before reaching Bardsey station. I did not notice any depression on the line after passing it. I did not notice any feeling as if my engine was descending at that point. My engine on that occasion was a single-wheeled one. All the vehicles of my train were six-wheeled ones.

*Mr. H. J. Rudgard*, district engineer, states: I am district engineer for the York District, and the scene of derailment is part of my charge. I arrived at the scene of the accident about 7.15 p.m. on the 3rd December. At that time all the vehicles of the train, with the exception of the engine, were in the position which they had taken up at the time of the derailment. The first carriage was standing with all its wheels in the six-foot space, the second was in a similar position, the third was in a similar position but leaning over towards the right, and the fourth vehicle was also leaning slightly to the right. The fifth vehicle was also derailed, but partly within the four-foot, and the end vehicle was derailed, except that the rear bogie was still on the rails. I do not think that any of these vehicles were uncoupled, but the head stocks of some of them were very close together. The first marks on the rails were about 50 yards beyond the smaller road bridge. The inside portion of the chair of the left-hand rail had a slight cut on it—point marked A on plan. The same chairs continued to be marked on that side. It was about 12 or 15 yards on before there were any marks connected with the right-hand rail.

The marks connected with the right-hand rail were on the outside of that rail. Point marked B.—From this point the chairs on both rails were more or less broken, the chairs being split right under the rail seat. There were no marks on the left-hand side of either one of the rails. These marks continued right away down to the point where the vehicles stopped. The marks on the sleepers began at about point B and then commenced near the left-hand rail, and eventually there were marks on the sleepers outside the right-hand rail. At the point where the two check rails end, the beginning of the left-hand check rail was broken off. It had the appearance of having received a heavy blow. From that point forward the permanent way was practically destroyed, the right-hand rail being completely overturned. It looks as if the derailment had occurred before meeting the check rail, and meeting the end of the check rail had finally completed it. I have examined the condition of the line since the accident. I examined it immediately after the accident and I could not find anything seriously amiss with it. The line was laid somewhere about a year-and-a-half ago with new material, 90-lb. rails on 40-lb. chairs, fish plates 26 lbs. the pair, length of rail 30 feet and 11 sleepers to the rail. The rails appeared in good order. I could not find any trace of the road having shifted. I tried the gauge of the line and it seemed slightly tight. I am acquainted with the plan which has been submitted showing the curves at this point. I am now aware that there is a curve of about seven chains radius. I was not aware of that fact before. To the best of my knowledge there has always been that curve at that point. No drivers have ever brought it to my notice in any way, and I was entirely ignorant that there was such a sharp curve at this point. I noticed near the point A a small depression of the left-hand rail. It appeared to me that this depression had been made at the time of the accident. From what I saw on the spot I am of opinion that the derailment was caused by excessive speed. I saw nothing in connection with the permanent way which could, in my opinion, have caused the accident. When I say excessive speed I mean considerably exceeding 25 miles per hour. I do not consider that a speed of 25 miles per hour round a curve of seven chains radius, one chain in length, as it is in this place, would be dangerous. If I had known of this curve I should have looked into the matter carefully. I noticed that the right-hand leading buffer of the leading vehicle was bent downwards absolutely at a right angle. From this I concluded that the tender buffer had been on top of it. This may account for marks appearing on one side before they appeared on the other. I cannot think of any other way in which the right-hand buffer of the leading vehicle can have been bent down in the way it was.

*Mr. C. Watson*, states: I was resident engineer on the Wetherby Branch during the doubling, and I am acquainted with the nature of the soil of which the banks are formed. Near the points A and B where the derailment occurred the embankment is formed entirely of rock, except the ballast. The sides of the embankment are simply covered with soil to a small depth, which was then sown with grass seeds. I do not agree with the statement that there is a great deal of clay in the embankment. There is not even any clay in the top covering. The ground at the foot of the embankment consists of very thick clay, and it is probably to this that the guard was referring. I was



responsible for the laying out of the curves of the line when it was made, though I did not actually superintend the laying out of the curve at the point at which the accident occurred. I do not think that the curve of seven chains radius existed at the time that the line was laid out, but I think that the line has given in that direction since. I know that there has been considerable trouble with the bank at that point.

*Joseph Wilson*, ganger, states: I am a ganger in the employ of the Company, and have been in their employ 23 years. I am in charge of the Bardsey section which includes the scene of this accident. My district extends to a point half way between Bardsey and Thorner, and includes all the curves at that point of the line. I had last walked over my section before the accident occurred on the same afternoon. I had found nothing wrong with the line, and seen nothing which I thought liable to cause a derailment. I always take particular notice of the portion where the curves are. I have been in charge of the down line ever since it was laid. I think that the curves at the point where the accident occurred were in the same condition as they were when I took charge of the line. The permanent way generally was in very good order. On the Saturday previous I noticed that the down road had slewed a bit to the left, about one-eighth of an inch, and for about half a rail length. I put it in line again. The line at this point has not given me any special trouble. I have only had to carry out ordinary repairs on it. I believe that there was some difficulty with the bank when the line was being doubled, but since the new down line has been opened there has been no trouble with it. I was on the spot very soon after the accident occurred, but could form no opinion as to what had been the cause of it. I have still no idea how it occurred. I had gauged the line that afternoon and found it correct.

*Charles Cuttley* states: I am permanent way inspector between Cross Gates and Wetherby, and have been over 20 years in charge of that district. During all recent weeks I have walked over the scene of the accident five days out of six, and I am thoroughly acquainted with the state of the line. I consider the line to be in good order. At the time the doubling was opened we had a little trouble with the embankment at this point, but recently there has been no trouble

at all. I am aware that there are some sharp curves at this point of the line. These curves have not given me any trouble. I have never had any idea that there was anything dangerous with the curves at this point. I am aware that trains travel at 25 miles an hour over this part of the line. The trains have always run very well round the curves at this point. I was on the ground soon after the accident occurred, and I could not form any conclusion as to the cause of the accident. The permanent way generally appeared to be in good condition. I am in the habit of riding on trains over this district. I rode over it twice on Monday, December 2nd, and twice on the day of the accident, and I also examined it on that day, and on neither occasion did I detect anything amiss.

*Mr. H. Worsdell* states: I am works manager, carriage and waggon works, North Eastern Railway. After the vehicles concerned in this accident were brought back to the shops I examined them all. I submit a table giving particulars of the damage done to the rolling stock. I consider that all the damage done to these vehicles appears to have been the result of the accident, or of getting them on to the line again, and not to have been the cause of the accident. All the wheels of the vehicles were to gauge, and none of the axles were bent at all. I do not consider that the bending of the right leading buffer of the leading vehicle was necessarily due to its having any vehicle on top of it. It might have been caused by a short sharp blow, and we have had many similar instances. There is nothing I can state to throw any light on the cause of the derailment.

*Mr. V. L. Raven*, assistant locomotive superintendent, North Eastern Railway: The engine and tender wheels were gauged by my staff on the scene of the derailment before the engine went away. They were all found correct to gauge with the exception of the middle tender wheel, which was under half an inch out of gauge owing to the axle being bent. The wheels were perfectly tight, and the tender travelled back to Newcastle without difficulty. I feel confident that the bend in the tender axle was caused by the accident. Even if it had occurred before the accident, I do not think it could have caused the accident. The tender wheels were gauged by one of my foremen at Gateshead on the 30th November, and they were then perfectly right.

### Conclusion.

The only witnesses who actually saw anything which occurred at the time of this derailment were the driver and fireman of the engine and the assistant guard of the train. The first intimation which the two former received of anything having gone wrong with the train was feeling that the tender was, as they described it, jumping up and down; it then became derailed, and they then saw that something had also gone wrong with the vehicles of the train. The driver is of opinion that it was some portion of the train which was derailed before anything went wrong with the tender, but he is unable to state any grounds on which he based that opinion.

The assistant guard, Skerry, who was riding in the second vehicle of the train, states that he was looking out of his duckett window at the time, and that he distinctly saw the leading end of the vehicle in front of him give a lurch towards the left and then give some violent jumps; he promptly took steps to apply his brake, and his own vehicle was almost simultaneously derailed. He cannot, however, say whether anything went wrong with the tender before the vehicle immediately in front of him began to lurch.

From this evidence it is, I think, clear that the derailment originally occurred in

connection with either the tender or the leading vehicle of the train. This is, however, the only fact that can be deduced from the evidence of these eye-witnesses, as neither of them can throw any definite light on the cause of the derailment.

The train had left Leeds at 4.46 p.m., which was 14 minutes after its booked time. As regards its speed between Leeds and Thorner, driver Charlton states that he slackened down at Waterloo, Cross Gates and Thorner, but that his speed between these points was at times between 40 and 45 miles an hour. The train passed Thorner at 5.5 p.m., having therefore accomplished the  $8\frac{1}{4}$  miles from Leeds in 19 minutes. This works out to an average speed of nearly 28 miles an hour, which appears to substantiate driver Charlton's estimate as to his speed for that portion of the journey.

As regards the speed from Thorner onwards, there appears to be no doubt that speed was reduced at the point just before reaching Thorner, where there was a temporary speed restriction. Driver Charlton states that he reduced speed to about 7 miles an hour at this point, and that after passing the check he quickened up to 40 miles an hour again. Signalman Burnett, who was on duty at the time in the Thorner signal box, states that the train was quickening when it passed him, and he estimates its speed at that time at 20 miles an hour. Guard Young states that he estimates the speed at the Thorner check at 20 miles an hour. It may therefore, I think, be accepted that the speed at Thorner was reduced to, at all events, under 20 miles an hour, and that that was the approximate speed when passing Thorner signal box.

The distance from Thorner signal box to the point where the derailment occurred was almost exactly  $1\frac{3}{4}$  miles, and the evidence as to the speed over this portion of the line is conflicting.

The 25-miles-an-hour speed restriction board is fixed just 1 mile from Thorner, and driver Charlton states that, though he increased speed to 40 miles an hour after passing Thorner, he maintained that speed for only a short distance, and that he then checked his train so as to have it in hand for the 25-miles-an-hour restriction; he estimates his speed at and after passing the speed restriction board at 23 miles an hour, and he states that he never quickened again, and that that was the speed of the train at the time of the accident.

Fireman Harker and guard Young both estimate the speed of the train after passing the speed restriction board at 25 miles an hour, but assistant-guard Skerry, who was riding in the front guard's compartment, estimates the speed over that portion at between 30 and 40 miles an hour. He states that on account of the speed of the train something seemed to urge him to be in readiness, and that on that account he was sitting near the brake regulator, and was holding himself prepared to work it.

As regards the actual time at which the train passed Thorner signal box, signalman Burnett states that he looked at the clock when the train passed him, and that it was 5.5 p.m., and that he at once sent the "train out of section" signal to the Scholes box, and the "train entering section" signal to the Bardsey box. The signalman in the Scholes box corroborates this time, stating that it was at 5.5 p.m. that he received the "train out of section" signal from the Thorner box; but the signalman at the Bardsey box states that it was at 5.4 p.m. that he received the "train entering section" signal from Thorner. From this evidence it is therefore uncertain whether the time of passing Thorner was 5.4 p.m. or 5.5 p.m.; it was probably somewhere between the two.

As regards the time at which the derailment occurred, signalman Whitelock, who was on duty in the Bardsey signal box, states that he first saw the train just as it reached the point where it was derailed, and that he at once sent the "train entering section" signal to Collingham, which was the next box to him. He states that he looked at the clock just before sending this signal, and that it was just short of 5.7 p.m. From this he is confident that that was the time of the derailment. The accuracy of this time is confirmed by the entry in the Collingham signal box book, which gives the time of the receipt from Bardsey of the "train entering section" signal as 5.7 p.m. This time may therefore, I think, be accepted as the time at which the accident occurred.

From the times recorded in these signal boxes, it would therefore appear that the time taken by the train in passing from Thorner signal box to the point where the derailment occurred was between 2 and 3 minutes. The distance is  $1\frac{3}{4}$  miles; if 2 minutes were the time taken, the average speed would have been  $52\frac{1}{2}$  miles an hour, while if three minutes were taken, it would have been 35 miles an hour.

Even allowing for the speed during a portion of the distance between Thorner and the restriction board being as much as 40 miles an hour, as stated by the driver, it appears probable that the speed after passing the restriction board must have been somewhat in excess of the 25-miles-an-hour limit.



As regards the condition of the permanent way: the materials of which the down line was constructed were, as stated above, new when laid about 18 months ago, and when examined after the accident appeared to be in excellent condition. A detailed survey has been made since the accident of the curve on which the derailment occurred, which, it will be remembered, was a right-handed curve of 25 chains radius. The curvature of each length of 11 yards has been checked, and the gauge and superelevation measured at each end of these lengths.

From this survey it appears that, while the curvature is for the most part fairly regular, there are two adjacent lengths where the radii are only 7 chains and 7.3 chains respectively. This sharp curve commences at a point 33 yards on the up side of the point A, referred to above, where the first marks due to the derailment were found. The fact of the first marks of the derailment occurring almost immediately after the train had passed over this sharp curve seems to afford strong grounds for concluding that the derailment was connected with it.

The superelevation appeared to be slightly high for a curve of 25 chains radius and a speed of 25 miles an hour, but the excess was not sufficient to account for the derailment, and, if the speed was in excess of 25 miles an hour, it would tend to safety.

The gauge of the line round the curve was very slightly tight throughout; the most this tightness ever amounted to was  $\frac{1}{16}$  of an inch, and in most cases it did not exceed  $\frac{1}{32}$  of an inch, but a tightness of gauge, even to the small extent which occurred in this case, is not desirable round a curve, and undoubtedly may contribute towards causing a derailment.

The rolling stock was all examined after the accident; the wheels were all found to be to gauge, except the centre wheels of the tender, the axle of which was slightly bent; this vehicle had been previously examined on the 30th November, when the wheels were found to be of the right gauge. It therefore appears probable that the bending of this axle was the result of this accident and not the cause of it. Even after the accident the tender travelled back to Newcastle without difficulty.

From the above considerations there can, I think, be little doubt that either the tender or the leading vehicle of the train was derailed near the point A, causing the eventual derailment of the whole train, and that the ultimate cause of this derailment was the sharp piece of curve over which the train passed just before reaching this point. Of the two vehicles it appears more probable that, on account of its rigid wheel base, it was with the tender that the derailment in the first instance occurred. With a speed of 30 or 35 miles an hour, and with the rails slightly tight to gauge, the derailment of such a vehicle round a curve of about 7 chains radius does not appear at all improbable. The fact of the derailment not occurring on the outside of the curve, as would naturally have been expected, was probably due to the presence of the check rail, which prevented the train leaving the rails on that side of the curve.

The Company have doubtless already taken steps to have the irregularities in the curve attended to, and this appears to be a point on the line which requires careful watching. Further; with the view of ensuring that the speed of down trains is reduced to 25 miles an hour before reaching the reverse curves the speed restriction board should be moved back half a mile to the point selected when this line was inspected; the Company should also take steps to ensure, as far as practicable, that this speed is not exceeded until the alterations, which it is understood are to be made to these reverse curves, are carried out.

I have, &c.,  
P. G. VON DONOP,  
*Lt.-Col. R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

#### APPENDIX.

##### DAMAGE TO ROLLING STOCK.

##### *Particulars of Damage.*

Engine, No. 2,109.—Middle tender wheel axle bent; tender brake gear damaged, and warming pipe hanger on back of tender broken off.

Bogie brake composite, No. 2,695.—Brake work damaged; 2 head-stocks, step-boards, caboose

and quarter light, 2 chains, 2 buffer castings, &c., broken; step-irons, a draw-bar shackle and 2 buffer rods bent; one truss rod bent at the cot end next tender; one head block broken.

Bogie brake third, No. 1,839.—Brake work and

roof boards damaged ; 2 head-stocks, 2 end panels, step-boards, quarter light, axle-box, 2 buffer castings, &c., broken ; step-irons and draw-bar bent.

Bogie lavatory composite, No. 1,632.—Brake work, gas connection, 2 channel irons, damaged ; 3 truss rods, 2 head-stocks, 2 longitudinals, 5 panels, moulding, facings, step-boards, axle-box, 2 outer knees, 2 buffer castings, draw-bar shackle broken ; 3 buffer rods bent.

Bogie luggage composite, No. 53.—Brake work

damaged ; a truss rod, 2 head-stocks, 8 panels, moulding, casings, step-boards, 3 end uprights, 16 buffer casting bolts broken ; 2 draw-bar shackles and 12 step-irons bent.

Bogie third, No. 2,778.—Brake work and gas connection damaged ; 2 head-stocks, 4 panels, moulding, door and axle-box broken ; 2 buffer rods bent.

Bogie brake third, No. 1,837.—End rail, door pillar, 2 step-boards, 5 step-iron bolts and axle-box broken, 4 buffer-rods and 3 step-irons bent.

#### DAMAGE TO PERMANENT WAY.

3 rails bent ; 265 check chairs broken ; 295 middle chairs broken ; 348 sleepers injured ; 1 crossing destroyed.

Printed copies of the above Report were sent to the Company on the 4th February, 1902.

### NORTH-EASTERN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, S.W.,  
January 29th, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 30th December, the result of my inquiry into the circumstances under which a collision occurred at about 6.40 p.m. on the 21st December at Neville Hill, Leeds, on the North-Eastern Railway, between two passenger trains, which were both approaching Leeds in the same direction.

In this case, as the 5.48 p.m. express train from York to Leeds, consisting of an engine, tender and eight vehicles, was standing at the Neville Hill home signal it was run into from the rear by the 4.50 p.m. train from Bridlington to Leeds, which consisted of an engine, tender and six vehicles.

The end of the rear brake van of the York train was completely smashed in, and the guard who was riding in it received injuries to which he shortly succumbed. Five of the vehicles also of that train were more or less damaged ; the front vehicle of it was derailed, and the train parted between the first and second vehicles.

The engine of the Bridlington train was badly damaged, and the driver received injuries which necessitated his detention in hospital for about three weeks. The guard also of this train was slightly injured, but none of the vehicles suffered any damage.

Six complaints in all have been received from passengers of personal injuries received.

The York train consisted of the following vehicles attached to the engine in the order given :—

- 1 third-class carriage.
- 2 brake vans.
- 2 composites.
- 2 third-class carriages.
- 1 brake van.

The above were all eight-wheeled bogie carriages, and they were fitted with the Westinghouse brake working blocks on all their wheels.

The engine of the Bridlington train was a single-driving-wheel bogie passenger engine, fitted with the Westinghouse brake, working blocks on the driving wheels and on the six wheels of the tender, and with a hand brake working the blocks on the tender wheels.

The train consisted of the following vehicles attached to the engine in the order given :—

- 1 brake.
- 1 third-class carriage.
- 1 composite.
- 1 first-class carriage.
- 1 third-class carriage.
- 1 brake.

The whole of the above were six-wheeled vehicles ; they were fitted with the Westinghouse automatic brake, working blocks on four wheels of each vehicle.

All the brakes are reported as having been in good order.

The damage to rolling stock is given in the Appendix ; that to permanent way was practically nil.

### *Description.*

Neville Hill, near which place this accident occurred, is a signal-box situated a short distance from Leeds on the North-Eastern Company's main line between Leeds and York.

There are several lines running past this signal-box in a direction which is approximately east and west, but the only line which is in any way connected with this accident is the up main line, which is the third from the box. The signal-box is situated on the south side of the line, and up trains approach it from the eastward.

The next signal-box to Neville Hill towards the east is Waterloo Junction signal-box, distant 1,006 yards from it, and the next box to it in the westerly direction is Marsh Lane East, distant 1,265 yards from it.

The following are the distances from the Neville Hill box to the various places and signals connected with this accident :—

	Yards.
Neville Hill signal-box to Neville Hill home signal ... ..	75
"          "      to point where collision occurred ... ..	195
"          "      to Neville Hill distant signal ... ..	929
"          "      to Waterloo Junction inner home signal ... ..	929
"          "      to       "          "      signal-box ... ..	1,006
"          "      to       "          "      direction signal ... ..	1,075
"          "      to       "          "      outer home signal ... ..	1,157
"          "      to       "          "      distant signal ... ..	2,042
"          "      to flagman's hut .. ..	1,270

The gradient for an up train approaching Neville Hill from Waterloo Junction is a falling one varying from 1 in 160 to 1 in 300. On a clear day a driver has a good view of his signals.

There are some new works in progress near Waterloo Junction, and on that account speed is restricted over a portion of the line between the Waterloo Junction and Neville Hill signal-boxes to 15 miles an hour ; a flagman is stationed a short distance to the east of Waterloo Junction box in order to call drivers' attention to this speed restriction.

The day on which this collision occurred was foggy, but the fog does not appear to have become dense till shortly before the accident occurred. Fogmen had been asked for by the signalmen in the Marsh Lane, Neville Hill and Waterloo Junction boxes about ten minutes before the collision, but at the time at which it occurred they had not yet reached their posts.

### *Evidence.*

*John Fisher*, driver, states : I have been nearly 28 years in the service of the Company, during 12½ of which I have been a driver. I came on duty on the 21st December at 7.47 a.m. to work until 6.47 p.m. I had no interval during which I could leave the engine. I came off duty on the 20th at 5.15 p.m. On the 21st December I was in charge of the 5.48 p.m. train from York to Leeds. My engine was a single-driving-wheel engine, fitted with Westinghouse automatic brakes working blocks on the driving wheel and on the wheels of the tender, and with a hand-brake working the blocks on the tender wheels. My brakes were in good order. Nothing unusual happened to my train until reaching Waterloo Junction. At Waterloo Junction all the signals were off for me except the distant signals for Waterloo and for Neville Hill. A detonator went off under my train to remind me of the speed restriction of 15 miles an hour when passing round the curve. I reduced my speed to 15 miles an hour and ran on to Neville Hill where I found the home signal at danger, and I brought my train to a stand at that point. We

had experienced fog on the journey from York to Waterloo, but at Waterloo Junction it was very clear indeed, and I had no difficulty at all in seeing all my signals. About 100 yards after passing the Waterloo home signal, I ran into a dense bank of fog so that I could not see the Neville Hill home signal. I got off my engine and walked across the independent to the side of the line and found the post. I found that my engine had just run past the signal-post which was opposite the leading wheels of the tender. Even though I was standing at the post I could not see the signal itself, so I walked forward to the cabin to see the signalman. My fireman was a passed driver so I left him in charge and told him to look after the engine. I instructed the signalman whereabouts I was standing, and he told me to stand there. I stood a few minutes in the cabin and the signalman said, I believe the Marsh Lane box is going to take you on. A message then arrived on the telephone, and the signalman told me that the Bridlington express had run past the Waterloo signals, and he told me to bring my train on. I went out and shouted

to my mate to bring the engine forward. He had just got the engine moving when the collision occurred. The fog was still very dense so that I could not see the Bridlington train approach me. There were no fog men out at all on the line that day. I had some trouble at Church Fenton in finding my signals, but nowhere else.

*Fred Widdop*, fireman, states: I have been 12 years in the service of the Company, during 8½ of which I have been a fireman. I worked the same hours as driver Fisher on the 20th and 21st of December, and I was with him on the 5.48 p.m. train from York to Leeds. I remember passing through Waterloo Junction. During the journey from York it had been foggy, but not sufficiently so as to prevent our seeing the signals. There was a slight fog at Waterloo Junction when we ran through, but it was not sufficient to interfere with our seeing the signals. A detonator went off under our train and the driver accordingly reduced speed when running round the curve. The driver brought the train to a stand just opposite the Neville Hill home signal. We could not see the signal on account of the fog, so the driver brought the train to a stand and got off the engine to search for it. The driver found the signal post which was immediately opposite the footplate. The driver could not see whether the signal was on or off, so he said he would go on and see the signalman. After he had been gone a few minutes I heard him shouting to me to draw down. I gave the engine steam and it moved about half a turn of the wheel when the collision occurred. I felt the shock on the engine and it knocked me down, but I was not injured. At that time it was still very foggy at Neville Hill, and I was still unable to see the home signal. When I gave the engine steam I took off my brakes.

*George Harrison*, assistant guard, states: I have been 32 years in the service of the Company. I passed as a guard about 16 years ago. I was employed on the 21st December as assistant guard on the 5.48 p.m. train from York to Leeds. I was riding in the third vehicle of the train from the engine. My train was fitted with the Westinghouse automatic brake working blocks on all wheels of the train. I believe it to have been in good order. The first that I knew of the collision was feeling the shock of it, and this was about four minutes after we had come to a stand at Neville Hill. On the journey from York the only place where we had thick fog was at Church Fenton. At Waterloo Junction there was a little fog. I looked out at Waterloo Junction and I saw the cabin lights, but I did not look for the signals. At Neville Hill there was a dense fog at the time that we came to a stand. Before the collision occurred I looked out for my signals, but I could not see them on account of the fog. I was dazed by the collision, and slightly injured. I believe my train moved forward two or three yards before the collision occurred. After the collision I went to the signal-box and warned the signalman to block both roads. He said that it was already done. I went back to my train to examine the state of it. No passengers complained to me at the time of having received injuries, but when I got to the rear of the train I heard some moans and found they came from the guard. He was lying on a board on which he had been placed by some of the men from Neville Hill. The guard was then carried away. I then went back again to the train to enquire if any passengers were injured. One gentleman complained to me of being injured. The leading vehicle of the train was derailed, and the train parted in front

of my van. The engine of the Bridlington train was right in the middle of the rear brake van, and most of the vehicles at the rear of my train had sustained some damage.

*Isaac Smurt*, signalman, states: I have been about 27½ years in the service of the Company, during 25 of which I have been a signalman. I am employed as signalman in Waterloo box and have been employed there 9½ years. I came on duty at 2 p.m. to work until 10 p.m. I had previously come off duty at 6 a.m. on the 21st. I remember the 5.48 p.m. train from York to Leeds passing my box. It passed my box at 6.33 p.m. All my signals were off for it except the distant. I noticed that he slackened speed when passing my box. At the time the train passed my box there was a slight fog, but I was able to see all the signals in proximity to the box. After the train passed I put all my signals to danger. The York train had been accepted by Neville Hill box at 6.30 p.m. At 6.33 I was offered the Bridlington train by the Cross Gates box. I accepted it at once. I did not lower any of my signals for the train. It arrived at 6.37. At this time I was at the west end of my box, so I did not see the train arrive at all, but my assistant put down the time of its arrival in the book as 6.37. I cannot therefore say definitely whether the train came to a stand at all. My assistant said, "The train has arrived, shall I allow him to draw up?" I said to him, "You may lower your signals and allow him to draw up to the inner home signal." My assistant pulled off the outer home and the direction signals. The next thing I heard was my assistant calling out to me, "I believe he is going to run past the signal!" meaning the inner home. I at once picked up a red light and went to the window to try and stop him, but I saw that I was too late. I saw the train come past my inner home signal. At this time I had no difficulty in seeing my inner home signal from the box. I distinctly saw the train come past it. I at once sent to Neville Hill the signal "Train running away on the right line." I then telephoned to Neville Hill telling him that the train had run past my signals at danger, and he must look out. He acknowledged the message. I had not offered the Bridlington train to the Neville Hill box as I had not received the "Train out of section" signal for the York train. As far as I can say it must have been 6.38 or 6.39 when the Bridlington train passed my box. After the Bridlington train had passed the fog had got worse at my box, but I am positive that at the time it passed I could see my signals. About 6.20 the signalman at Neville Hill asked me if I wanted the fogmen. I told him I did not require them. He replied, "Well, the fog is coming towards you, and you will have it sooner or later," and said that he was going to ask for his fogmen. I said to him, "All right, I will have mine also," but at the time I said this I really did not require them. I am acquainted with rule 85, which says that when fog-signalmen have not arrived the signalman, when he requires to stop an approaching train, must place two detonators on the line. I did not carry out this rule on this occasion because I could clearly see the signal from my box, and therefore there was no necessity for it. I am quite certain that after the Bridlington train passed me I looked up and could see the inner home. There was no difficulty in seeing it from my box.

*Frederick Wilson*, assistant signalman, states: I have been two years in the service of the Company. I have been an assistant signalman about

6 months, and during the whole of these six months I have been employed in the Waterloo Junction signal-box. I worked the same hours on the 31st December as signalman Smart. I remember the 5.48 p.m. York to Leeds train passing my box. All the signals at Waterloo Junction were put to danger after this train passed. The weather was pretty clear at the time the train passed and there was no difficulty in seeing the signals. I remember seeing the 4.50 p.m. Bridlington to Leeds train approach my signals. This was at 6.37 p.m. At this time all the signals were at danger. The Bridlington train came to a stand at the outer home. It was clear enough for me to see it standing at that point. I asked signalman Smart whether I should lower the outer home and the direction signals to enable him to draw up to the inner home. He said "Yes," so I did so. I did not lower the inner home, and I am quite sure on that point. I looked the train as arriving at 6.37, and on turning round I noticed that he was going past the cabin with steam on. I at once told Smart that I thought the train was not going to stop at the inner home. Smart then ran to the window to try and attract the driver's attention, but he saw he was too late to do so. I saw the Bridlington train run past the inner home signal without checking speed. I myself could at that time see the inner home signal without any difficulty, and I am quite sure that it was at danger. I then heard Smart send the "Train running away on right line" signal to the Neville Hill box. He then got the signalman on the telephone and told him what had happened. After the Bridlington train passed the fog got worse. We had not had fogmen out that day, and I do not think we wanted them until after the Bridlington train had passed.

*Robert Fewster*, signalman, states : I have been about 19 years in the service of the Company, during 17 of which I have been a signalman. I have been over seven years in the Neville Hill signal-box. I came on duty at 2 p.m. to work until 10 p.m. on December 21st. I had previously come off duty at 6 a.m. on the 21st. I remember the 5.48 p.m. from York to Leeds arriving at my box at 6.34 p.m., all my signals were at that time at danger. The train came to a stand at my home signal. At this time it was very foggy. I could not see the train from my box, but I heard it come to a stand. At this time I could not see the train, and I could not see the signal. Immediately after it came to a stand the driver came to my box and told me that he had brought his train to a stand at the home signal. I told him to stop there until his train was accepted by Marsh Lane. He remained in the signal-box. At 6.37 I received from Waterloo Junction the signal "Train running away on right line." At the same time he called me up on the telephone and told me that the Bridlington train had run past his signals and I must look out. I at once told the driver to go out and to draw his train inside the home signal in spite of its being at danger. The driver went away at once, but in order to facilitate matters I lowered the home signal so as to attract the fireman's attention. I heard the train commence to move forward, and immediately afterwards heard the noise of the collision. The Bridlington train had not been offered to me by the Waterloo Junction box, and I had not sent "Train out of section" to that box. At the time of the collision the fog was very dense. I had not any fogmen out. I had asked for them at 6.27 p.m. Up to 6.27 p.m. I had not considered fogmen were necessary, at

this time the fog came on thicker. About 6.20 I had communicated with Waterloo Junction about calling out fogmen. He said to me that he did not require them at all. I had further communication with him, and he subsequently concurred in my sending for his fogmen. He demurred to doing so at first as he said he did not require them. I had heard from the signalman at Marsh Lane, that the fog was thick at that point before it was thick at my box, and it was from that direction that the fog approached me.

*Frederic Levitt*, platelayer, states : I have been about nine years in the service of the Company, during seven of which I have been employed as a platelayer. On the 21st December I was employed as flagman at Waterloo signal-box. I was posted in the flagman's cabin outside the outer home signal. My duty was to put fog-signals on the line to remind drivers of the speed restrictions round the curve. I remember both the York and Bridlington trains passing me. I put detonators under each of them which exploded. When the York train passed it was slightly foggy, but quite clear enough to see all signals. When the Bridlington train passed the weather was just the same. I am quite confident there was not the least difficulty in seeing the signals. The Bridlington train came to a stand at the outer home signal. I saw both the outer home signal and the direction signal lowered for it. I saw the signals quite plainly. I could also see the inner home signal, and that signal was not lowered for the Bridlington train. About 6.50 the fog got very bad and fogmen came out. At the time the Bridlington train passed Waterloo there was, in my opinion, no need for fogmen. I was standing near my flagman's box when the Bridlington train passed.

*William Townend*, driver, states : I have been in the service of the Company 28 years, during 21 of which I have been a driver. On the 21st December, I was driving the 4.50 p.m. Bridlington to Leeds. I came on duty on that day at 12.45 p.m. to work until 12.15 a.m. on the 22nd. I had previously gone off duty at 1.15 a.m. on the 21st. I did not leave my engine after coming on duty on the 21st. My engine was a four-wheels-coupled passenger engine, fitted with the Westinghouse brake, working blocks on the four coupled wheels, and on the six wheels of the tender, and with a hand-brake working blocks on the tender wheels. My brake was in good order. Nothing unusual happened on the journey from Bridlington to Waterloo Junction except the fogs. I had no difficulty in coming from Bridlington to Selby, but between that point and South Milford we had been stopped once on account of dense fog. My train arrived at Waterloo Junction at 6.33 p.m. I sighted the distant signal when I was about 15 yards from it. It was at danger. I reduced my speed and ran on quietly to the outer home signal where I came to a stand. Before reaching this signal I exploded a detonator which reminded me of the speed restriction. I was kept standing at the outer home signal between two or three minutes, and it was then lowered for me. I gave my engine steam and ran on. I came to the direction signal, which I found off for me, so I still ran on. I passed the signal-cabin at about five miles an hour. I looked to the cabin to see if there was a red light, meaning me to stop there. There was no red light shown nor was there any verbal communication whatever, nor were there any detonators placed opposite the cabin. I then went forward, and under a wrong impression that on account of the outer home and intermediate signals being lowered, the section ahead

was clear. By rule 85 it was the signalman's duty on a night like that to have placed detonators opposite his cabin. I went past the cabin, and about 20 yards past I entered a dense bank of fog. At that point I lost my position. The fog was very dense. I proceeded steadily with steam on until I came to the termination of the portion over which there is a speed restriction, and at that point I regained knowledge of my position. I shut off steam and ran forward about 300 yards. When I thought that I was about a train's distance from Neville Hill home signals I applied the brake slightly. A few seconds after that I sighted the side light of the York train in front of me. I at once applied the brakes fully. At that moment the collision occurred. I only sighted the train in front of me immediately before the collision occurred. I never saw the inner home signal at all at Waterloo Junction, on account of the dense fog which we ran into. I am well acquainted with this line, and I know where the signals are placed. I knew that there was an inner home signal at Waterloo Junction. I am acquainted with the rule which says, if I cannot see a signal I am to treat it as a danger signal. I cannot explain why I did not carry out this rule on this occasion.

*Henry Lazenby*, fireman, states: I have been in the service of the Company 10 years, during eight of which I have been a fireman. I was acting as fireman on the 4.50 p.m. train from Bridlington to Leeds on the 21st December. I came on duty on that day at 12.45 p.m. to work until 12.15 a.m. on the 22nd. I came off duty on the 21st at 12.15 a.m. I remember our train arriving at Waterloo Junction and being stopped at the outer home. It had been very thick between Selby and South Milford, but beyond that we had not been much troubled by the fog. I had no difficulty in seeing the outer home signal at Waterloo Junction. We remained there about two or three minutes, and then the board was pulled off and we moved forward down to the intermediate signal, which was off for us also. We went past that signal and ran past the box and I never saw the next signal at all. I know where the next signal is, but owing to the fog I was unable to see it. I did not, however, look out for the third one. I do not know whether my driver was looking out for it. We did not stop at it and we ran forward at a speed of about 10 miles an hour. I never saw anything in front of me on the line, and the first I knew of the collision was feeling the shock of it. We were going about 10 miles an hour at the time of the collision. The driver had not steam turned on at that time. The automatic brake was on. It was hard on at the time of the collision, but I cannot say whether it was hard on at the time previous to it. We could just see the direction signal when we passed it. We could see the signal-box quite clearly when we passed it, but I cannot say anything about the

inner home signal. I did not look for the inner home signal because my mate said "Right away."

*Joseph Redman*, guard, states: I have been nearly 25 years in the service of the Company, during 13 of which I have been a guard. I was guard of the 4.50 train from Bridlington to Leeds on the 21st December. I came on duty at 3 p.m. to work until 12.10 a.m. on the 22nd. I came off duty at 12.10 on the 21st. My train consisted of the following vehicles attached to the engine in the following order:—

				Wheels.
1 brake van	...	...	...	6
1 third	...	...	...	6
2 composites	...	...	...	6
1 third	...	...	...	6
1 brake van	...	...	...	6

The train was fitted with the Westinghouse brake working blocks on four wheels of each carriage. My brake was in good order. It had been foggy at Selby, but we had not been interfered with by the fog. I remember arriving at Waterloo Junction. We came to a stand at the outer home signal. I was riding in the rear van of the train. I looked out of my window and saw that the outer home signal was at danger. It was a little foggy at the time, but I could see the signal from my van. We stood about a minute at the outer home and then we went forward. I saw that the outer home signal was lowered for us, but I did not see whether the direction signal was off or not. I looked for the direction signal, but I could not see it on account of fog or steam from the engine. I just got a glance of the signal-box, but I was really looking out on the other side of the line. I was looking out of my side light to see the inner home signal, but I did not see it. Immediately we passed the cabin we seemed to have at once run into a bank of fog, and it was on account of this I could not see the inner home signal. The whole way from there up to Neville Hill the fog continued very thick. I know this line well, and I know where all the signals are. I knew that there was an inner home signal, and I knew that we had run past it without my being able to see it. I concluded that the driver must have seen the inner home. I think we passed the inner home signal at about eight or nine miles an hour. We only quickened speed a little after that. Just before the collision occurred I noticed that the automatic brake was slightly applied. The first I knew of the collision was feeling the shock of it, and I was knocked down in my van. I think we were running about 10 miles an hour when the collision occurred. I got out after the collision to see what had happened. I did not receive any complaints from passengers in my train. With the exception of the engine my train was not damaged at all. After the collision the fog was very dense indeed at Neville Hill.

### Conclusion.

From the above evidence it is clear that the collision was entirely due to the fact of driver Townend having allowed his train to run past the inner home signal at the Waterloo Junction box when that signal was at danger.

The York train had passed the Waterloo Junction box at 6.33 p.m., and all the signals at that box had been duly placed at danger behind it. The train then ran on to the Neville Hill box, where it was brought to a stand at the home signal owing to the next section not being clear.

At 6.37 p.m. the Bridlington train approached the Waterloo Junction signal-box, and came to a stand at the outer home signal which was still at danger. Signalman Smart

states that at that time the fog was not sufficient to prevent his seeing all the signals in the neighbourhood of the box, so he instructed his assistant to lower the outer home and the direction signals so as to enable the Bridlington train to draw up to the inner home signal. This inner home signal, Smart states, was quite visible from his box, so the train standing there would be still well within his sight.

The Bridlington train accordingly drew up, but, instead of stopping at the inner home signal, it ran past it and on towards Neville Hill. Smart suspected from the speed at which the train passed his box that it was not going to stop at the inner home signal, so he tried to stop the driver by showing him a red light, but he was not in time to do so. He at once sent to Neville Hill the signal for "Train running away on right line," and told him on the telephone what had happened. Signaller Fewster, in the Neville Hill box, at once gave instructions to the York train to draw forward, and it had just begun to move when it was run into in rear by the Bridlington train, the fog at that point being exceedingly dense.

There is no doubt at all as to driver Townend having passed the inner home signal when it was at danger. He admits that he did not see this signal, and his explanation of running past it is that he was under the impression, which he candidly admits to be a wrong one, that on account of the outer and direction signals being lowered the section ahead was clear for him. He asserts that on account of the fog he could not see the inner home signal, and he maintains that the fog was so thick that he considered that the signaller should have put detonators on the line opposite his box if he wished to stop him at the inner home signal.

The fireman can give no evidence as to the view of the inner home signal, as he states that the driver had previously said to him "Right away," so he did not look for it.

The guard of the train, however, states that he was on the look out for the inner home signal, and that on account of the fog he was unable to see it.

On the other hand, signaller Smart and assistant signaller Wilson, who were on duty in the Waterloo Junction box, both positively assert that they watched the Bridlington train run past the inner home signal, and that at that time they could from their signal-box—distant 77 yards from that signal—distinctly see that that signal was at danger. The flagman, platelayer Levitt, who was posted at a point distant 341 yards from the inner home signal, states that from his post he saw the outer home and direction signals lowered for the Bridlington train, but he could at the same time see also the inner home signal, and he positively asserts that he saw that it was at danger.

On the whole I am inclined to think that if driver Townend had been keeping a careful look-out he could have seen that the inner home signal was at danger; even if, as he states, he was unable to see it, he should certainly have treated it as a danger signal and brought his train to a stand accordingly. The responsibility for this accident must therefore rest entirely on him. He had been 5½ hours on duty at the time when the accident occurred.

I have, &c.

P. G. VON DONOP,  
*Lieut.-Col., R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

#### APPENDIX.

##### DAMAGE TO ROLLING STOCK.

###### *York Train.*

- Bogie carriage, No. 369.—2 axle guards bent.
- Bogie carriage, No. 701.—Drawbar centre pin and buffer spring clip broken.
- Bogie carriage, No. 1,414.—Body stay broken.
- Bogie carriage, No. 2,263.—Buffer packing damaged.
- Bogie carriage, No. 2,989.—Headstock damaged.

Bogie brake van, No. 2,960.—End completely smashed in, trailing pipe displaced, and four axle boxes broken.

###### *Bridlington Train.*

Engine, No. 1,723.—Front part of smoke box damaged and tube plate fractured.

Printed copies of the above Report were sent to the Company on the 25th February, 1902.



## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
January 13th, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 2nd January, the result of my inquiry into the circumstances under which a collision took place at 8.2 p.m. on the 27th December, between a passenger train and the buffer stops at Newcastle Station on the North-Eastern Railway.

In this case, as the 6.10 p.m. express train from York to Newcastle, consisting of an engine, tender, and eight vehicles, was running into No. 7 platform line at Newcastle Station, it came into collision with the buffer stops at the end of that line. The speed of the train at the time of the collision must have been small, as, though the buffer stops were damaged and the engine was injured, the remainder of the train was not damaged in any way, no glass being broken. No passengers were seriously injured, but 17 have complained of slight personal injuries sustained.

The engine was a four-wheels-coupled tender engine, fitted with the Westinghouse automatic brake, working blocks on the four coupled wheels and on the tender wheels, and with the hand brake working the blocks on the tender wheels.

The train consisted of the following vehicles, all six-wheeled, attached to the tender in the order given :—

- 1 brake third.
- 3 third-class carriages.
- 2 composites.
- 1 third-class carriage.
- 1 brake van.

The train was fitted with the Westinghouse automatic brake, working blocks on four wheels of each vehicle.

All brakes are reported to have been in good working order.

The damage to the engine consisted in the bending of the front fence rail and of the front coupling screw, damage to both leading buffers and the breakage of the Westinghouse pipe and life guard.

The damage to the permanent way consisted in the overturning of, and damage to, the buffer stops.

*Description.*

No. 7 platform line, Newcastle Station, on which this collision occurred, is one of the 10 platform lines by which a down train enters the station after passing over the High Level bridge. It is a bay line running into the station in a westerly direction, terminating at its western end by buffer stops, and having a platform along the south side of it. On the south side again of this same platform is No. 8 platform line, which however is not a bay line, but a through line running right through the station. It is with these two lines alone that this accident is concerned.

The platform between these lines extends to a distance of 186 yards to the eastward of the buffer stops, and 71 yards further east again is the point where Nos. 7 and 8 platform lines separate. There are splitting signals at this point for the two lines, that for No. 8 line being fixed somewhat higher than that for No. 7 on account of the former being a through line while the latter is only a bay line. These two signals are therefore clearly distinguishable from each other. Further out again there is a home and an inner home signal relating to the down main line by which trains approach these splitting signals for Nos. 7 and 8 platform lines. A driver approaching these splitting signals has a good view of them from a point 220 yards distant from them, i.e., from a point 477 yards distant from the buffer stops; he therefore gets clear information at that point whether he is running into a bay line or into a through line. The lines running across the High Level bridge and into the station are almost exactly on the level.



## Evidence.

*James Law*, driver, states: I have been about 46 years in the service of the Company, during about 10 years of which I have been a driver. On the 27th December I was driving the 6.10 p.m. express train from York after it left Darlington. I came on duty on the 27th December at 6.15 p.m. to work till 4.15 a.m. on the 28th. I had previously come off duty about 1 p.m. on the 26th. My engine was a four-wheeled coupled passenger engine, fitted with the Westinghouse brake working blocks on the four coupled wheels, and with a hand brake working the blocks on the tender wheels. My brakes were in good order. We left Darlington about 7.4 p.m., which was a minute or two late. We did not stop anywhere between Darlington and Newcastle. We travelled between Darlington and Newcastle at a speed of about 50 miles an hour, but we slackened down over the Durham Viaduct to about 15 miles an hour. I made use of the brakes when reducing the speed at Durham and the brakes acted well. I had no reason to complain of the brakes at all. It was close on 7.54 p.m. when I arrived at Newcastle and the accident occurred. On crossing the High Level Bridge I found the home signal off for me. The remaining signals for No. 7 platform line were also off for me, but I mistook these for No. 8 and thought I was running into No. 8, which is a through platform. When I reached the end of the platform I realized that I was not on No. 8 line as the platform was on the wrong side of me. I estimate my speed when I reached the end of the platform at about five miles an hour. I at once applied my brake to the full extent. I had shut off steam when leaving Bensham Station and never turned it on again. I quite admit that I mistook the signals and that that was the cause of the accident. I do not think that our speed at the time of the collision exceeded a mile an hour. Neither I nor my mate was at all injured by the collision and the engine was only slightly damaged. I have been driving passenger engines between Darlington and Newcastle for about 15 or 16 years, but have never taken a train into No. 6 or 7 platform before, but I was aware that there were buffer stops at the end of it. On this occasion I did not imagine for a moment that I was going to run into No. 7, I thought I would run into No. 8. I know the difference between the signals for No. 7 and No. 8, but I made a mistake on this occasion. I am stationed at Darlington and I do not often come to Newcastle. I sometimes go for seven or eight months without coming there. I consider I am sufficiently well acquainted with the signals to bring a train into Newcastle.

*Thomas Hall*, fireman, states: I have been 12 years in the service of the Company, during seven of which I have been a fireman, previous to that I was a cleaner. I worked as fireman to Driver Law, and worked the same hours as he did on December 26th and 27th, and was with him on the 6.10 p.m. train from York. I remember that my driver used the Westinghouse brake near Durham Viaduct. It appeared to me to act very well. I do not myself know the signals at Newcastle Station very well, but I believe that the signals were all off for us when the train ran in. I do not, however, myself know the difference between the signals for No. 7 and No. 8 lines, so I did not know that we were running into a platform that had buffer stops. The first I knew of there being a chance of anything going wrong was when we came to the commencement of the

platform, and at that point a porter called out "Steady." I had just applied the tender brake, so I looked forward to see if there were any signals against us, and then went back to see that the brake was still on. I think that our train was going at about 6 or 7 miles an hour when we reached the commencement of the platform. The driver applied the Westinghouse brake at the commencement of the platform when I said "Steady" to him, and he applied it fully when he was about 25 yards from the buffer stops. The Westinghouse brake acted very well, and the train was going very slowly at the time the collision occurred. I am quite sure the driver did not apply the brake fully at the commencement of the platform. I have only run into Newcastle Station before on passenger trains on about four or five occasions. I did not think that the speed at which we approached the station on this occasion was higher than usual. I was not at all injured by the collision. I noticed that my driver turned off steam at Bensham Station, and that he never turned it on again. I first realized that we were running into buffer stops when the porter shouted "Steady" to me, and I think that the driver realized it at the same time.

*Benson Brabner*, guard, states: I have been 18 years in the service of the Company, during 12 of which I have been a passenger guard. I came on duty on 27th December at 11 a.m. to work till 11 p.m. I think I came off duty at 10 p.m. on the 26th. I was guard of the 6.10 p.m. express train from York and joined that train at York. My train consisted of the following vehicles attached to the engine in the order given:—

				Wheels.
1 brake third	...	...	...	6
1 third	...	...	...	6
1 third	...	...	...	6
1 third	...	...	...	6
1 composite	...	...	...	6
1 composite	...	...	...	6
1 third	...	...	...	6
1 van	...	...	...	6

and I was riding in the rear van. The carriages were all fitted with the Westinghouse automatic brake working blocks on four wheels of each vehicle. The brakes were in good order. We left Darlington at 7.12 p.m., which was six minutes late. We were due at Newcastle at 7.57 p.m., and the accident occurred at two minutes past 8, which was therefore the time of our arriving at Newcastle. The only signal which I saw when we were running into Newcastle Station was the home signal on the high level bridge; it was off for us. I did not see any of the remaining signals. I estimate our speed when passing the home signal at about 10 miles an hour. When we were running into the platform it did not strike me that the speed was unusually high and I had no idea that there would be any accident. The first I knew of the collision was feeling the shock of it. I estimate our speed at the time of the collision at about four miles an hour. I felt a distinct shock at my end of the train but not a severe one. No passenger complained to me personally of being injured. My train was not injured in any way as far as I could see. I run into Newcastle Station on passenger trains pretty frequently. I do not think that this train approached the station at a quicker speed than usual. I noticed

that the driver applied the Westinghouse brake when we passed through Durham and it seemed to act very well. On approaching Newcastle Station I noticed that the driver applied the brake outside Gateshead Station. Just as were leaving the bridge I applied my hand brake, so I did not notice after that what the driver did with the Westinghouse brake.

*Robert Forrest*, signalman, states: I have been 30 years in the service of the Company, during 20 of which I have been a signalman. On the evening of the 27th December I was on bridge duty. I came on duty at 2 p.m. to work till 10 p.m. I remember seeing the 6.10 p.m. express train from York approaching the station. I noticed nothing special about it—it appeared to approach the station at the usual speed. I estimate its speed when it passed me at about 9 or 10 miles an hour. The first I knew of the accident was hearing the sound of the collision. I did not actually see it, so I cannot say at all at what speed the train was going at the time of the collision. I knew that the train was running into No. 7 platform, and I knew that there were buffer stops at the end of No. 7. It never occurred to me that there would be any difficulty in stopping the train before it reached the buffer stops.

*John Sankey*, shunter, states: I have been 10 years in the service of the Company, during six of which I have been a shunter. I was on duty in Newcastle Station on the afternoon of the 27th December, and I saw the 6.10 p.m. train from York entering the station. I was standing at the east end of No. 7 platform. When I saw the train approaching No. 7, I thought that it was going at a high rate of speed. I can give no estimate as to what its actual speed was. I shouted out to the fireman as he passed me, but I did not see that he took any notice of me. To the best of my belief the Westinghouse brakes were not applied at all when the train passed me, but about half-way along the platform I noticed that the brakes were applied. They appeared to be then applied very hard. I think that the train then skidded. I cannot say what the speed was at the time of the collision, but I am not prepared to say that the train was nearly stopped.

*Francis Birkett*, signalman, states:—I have been 25 years in the service of the Company, during the whole of which time I have been a signalman. I was on duty in No. 2 box on the evening of the 27th December. I came on duty at 2 p.m. to work till 10 p.m. I came off duty at 10 p.m. the previous night. I remember seeing the 6.10 p.m. train from York approaching the station. When the train was passing No. 1 cabin it struck me that it was coming in rather fast. The train did not seem to check speed at all till it was about 75 yards from the buffer stops. At that time the brake appeared to be applied hard, and I noticed sparks flying from the rails. The speed slackened a bit, but I estimate the speed of the train when it struck the buffer stops at 12 or 13 miles an hour. I feel confident that when the train passed No. 1 box it was going faster than trains usually do, and it at once struck me that it would have a difficulty in stopping.

*William Little*, goods guard, states:—I have been 27 years in the service of the Company, during 18 of which I have been a goods guard. I was travelling in the 6.10 p.m. express from York on the 27th December. I was travelling in the front brake van. I finished duty at York and was travelling back as a passenger. Coming off the bridge I cannot precisely say what the speed of the train was, but I thought that it was travelling rather sharp. I knew that we were running into No. 7 platform, and I saw that the signals were off for that line. I had no idea that there was any chance of any accident occurring until we were running along the platform. I then thought we were going too fast, and I applied the hand brake as hard as I could. This was at the commencement of the platform. When I applied the hand brake the wheel seemed to work quite easily, which looked as if the blocks were already applied. I estimate our speed at the time the collision occurred at about four or five miles an hour. I scarcely felt any shock at all in my van. I myself attribute the collision to excessive speed when entering the platform. The brakes seemed to act, but I expect the wheels were skidding a bit.

### Conclusion.

Driver Law, who was in charge of the engine of the train to which this accident occurred, candidly admits that the collision was due to a mistake on his part. Though he now allows that it was the signal for the bay line—No. 7—which was lowered for him, he at the time thought that it was the signal for the through line No. 8; he thought therefore that he was running into a through line, and he was not prepared to stop at the buffer stops at the end of No. 7 line. He discovered his mistake too late to enable him to bring his train to a stand before coming into collision with the stops.

The speed of the train when running over the High Level Bridge and when approaching the station does not appear to have been excessive. Signalman Forrest, who was on duty on the signal bridge across the line at the point where the splitting signals for Nos. 7 and 8 are fixed, states that its speed was at that point in no way unusual, and, though he knew that the train was running into a bay line, it never occurred to him that there would be any difficulty in stopping it before it reached the buffer stops. Driver Law appears therefore to have approached the station up to the splitting signals at a reasonable speed.

It seems clear, however, that from that point onward the speed was not sufficiently checked, for three witnesses, viz., shunter Sankey, who was standing at the east end of the platform, signalman Birkett, who was in No. 2 signal-box immediately behind the buffer stops, and goods guard Little, who was riding as a passenger in the front vehicle of the train, all concur in stating that they noticed that the speed was too high when the train was running alongside the platform.

The evidence as to the point at which the Westinghouse brakes were fully applied is contradictory. Driver Law states that as soon as he reached the end of the platform and saw that it was on his left-hand side he immediately realised his mistake and applied the brakes fully; the evidence, however, of his fireman, of shunter Sankey, and of signalman Birkett is to the effect that the brakes were not fully applied till the train was very much nearer the buffer stops. It seems probable that the latter was the case, and that driver Law did not notice the platform on his left-hand side till he had run some way along it.

Driver Law states that, though he does not often run into Newcastle, he is well acquainted with the signals; he knew the difference between the signals for No. 7 and No. 8 lines respectively, and he knew that No. 7 was a bay line; he had, however, never run into No. 7 platform line before, and it never seems to have occurred to him on this occasion that he could be running into it.

The responsibility for this accident must, as he himself admits, rest entirely on him; he has been employed for 40 years as a driver in the Company's service and bears a most excellent character; he had been on duty slightly under two hours at the time of the collision.

I have, &c.,

The Assistant Secretary,  
Railway Department, Board of Trade.

P. G. VON DONOP,  
*Lieut.-Col. R.E.*

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Printed copies of the above Report were sent to the Company on the 5th February, 1902.

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## SOUTH-EASTERN AND CHATHAM RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
December 7th, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 19th November, the result of my enquiry into the cause of the collision, which occurred on the 16th November, about 6.20 a.m., between two passenger trains at Shepherd's Lane Junction, on the South-Eastern and Chatham Railway.

In this case, two workmen's trains were concerned, viz., the 6.2 a.m. from Victoria to Holborn, and the 6.10 a.m. from Victoria to Greenwich. The former train was standing at the down stop signals at Shepherd's Lane Junction, between Clapham Road and Brixton Stations, when the latter, travelling on the same line, entered the same block section and collided with the rear vehicle of the first train.

The 6.2 a.m. train was composed of a four-wheels-coupled tank engine and 13 four-wheeled carriages, and was fitted throughout with the Westinghouse automatic brake. The 6.10 a.m. train consisted also of a four-wheels-coupled tank engine with six four-wheeled carriages equipped with similar brake appliances.

Complaints of injury and effects from shock were received from 17 passengers in the 6.2 a.m. train, but no one in the second train appears to have been injured except the guard, who experienced a severe blow on the head.

The force of the collision was sufficient to totally destroy the rear carriage of the train in front and cause other damage to rolling stock. A list of such damage is given in Appendix I.

A dense fog prevailed in the vicinity of the scene of the accident at the time of its occurrence.

### *Description.*

Shepherd's Lane Junction lies between Clapham Road and Brixton Stations, and is distant about 1,020 yards from the former, and 320 yards from the latter.

There are two roads for up, and one for down traffic, between Clapham Road Station and Shepherd's Lane Junction. Of these the down line alone is concerned in this accident.

The railway curves easily first to the right and then to the left between the two

named stations. A train leaving the down starting signal at Clapham Road Station encounters the following gradients on its journey to the point where the collision occurred :—

Rising gradient 1 in 100, for a length of about 73 yards.

Level " " " " 99 "

Falling gradient 1 in 300 " " 165 "

" " " " 560 "

Clapham Road signal cabin is at the N.W. end of the station on the up side of the line, and controls the following down line signals referred to in the case :—

Starting signal, at the S.E. end of the station, and distant 192 yards from the cabin.

Advance starting signal, which is 460 yards distant from the cabin.

Shepherd's Lane Junction signal cabin is situated on the down side of the railway, and from it are worked the undermentioned signals :—

Down distant signal, carried under, and on the same post as, the down advance starting signal for Clapham Road. This signal is 735 yards from the cabin.

Down home signals, situated a few yards on the Brixton side of the cabin.

All these three signal posts are on the proper left of the line.

There is the usual Sykes' electrical locking in the section.

### *Evidence.*

*Herbert Rolfe*, signalman, states : I have about 25 years' service as a signalman. My hours of duty on Friday night (15th November) were from 10 p.m. to 6 a.m. I am signalman at Clapham Road. I was relieved at 6.13 a.m. on the morning of the 16th by signalman Staines. The 6.2 a.m. (workmen's) train, Victoria to Holborn, was offered me at 6.10 a.m. by Wandsworth Road. I accepted it at the same time, and it arrived at Clapham Road at 6.12 a.m. I offered the 6.2 a.m. train to Shepherd's Lane at 6.13 a.m. as the train was leaving the station. I had pulled off the down starting signal for the train to draw forward to the advance previous to receiving the clearance for the previous train. I then handed my duties over to Staines. I left the box about 6.14 a.m. and got into the 6.10 a.m. (workmen's) train, Victoria to Greenwich, about 6.15 a.m., to go home. When I got into the train the weather was clear enough for me to see the down advance signals and all others. I report myself to the inspector on duty if it is foggy when I come off duty, and on this morning it was clear and frosty, and I did not therefore report myself. Once in the train I did not notice anything until the collision occurred, and cannot say what the speed was. Nor did I observe we had run into the fog until I got out of the carriage after the collision. The fog there was then very dense. I felt no diminution of the speed before the shock of the collision. After getting out of the train I walked back along the line to Clapham Road. There is a printed regulation in the Company's General Rules that trains are not to be permitted to draw forward to the advance signals in foggy or snowy weather till the clear signal for the preceding train has been received from the box in advance. In the case of the 6.10 a.m. train it was perfectly clear, and I should have had no hesitation myself in allowing the train to draw up to the advance signal.

*John Staines*, signalman, states : I have about 15 years' service as signalman, and have been at Clapham Road about 5½ years. My hours of duty on the 16th November were from 6 a.m. to 2 p.m. After my arrival in the box, I cleared back to Wandsworth after the 6.2 a.m. train, and pulled off the down advance signal for that train. The 6.10 a.m. train I received on from Wandsworth Road at 6.13 a.m.; it arrived at 6.15 a.m.

I pulled off the starting signal for the train to draw up to the advance about 6.17, not having received the clear signal from Shepherd's Lane for the 6.2 a.m. When I let the 6.10 a.m. out of the station I could see quite clearly the red light of the down advance signal. The fog obscured my view of this signal light some time after 6.20 a.m. At 6.20 a.m. I was called up by Shepherd's Lane and told that a collision had occurred. The message was, "Something has run into this Holborn Viaduct train." My reply was, "That must be the Greenwich train." At this moment I could see the red light of the down advance signal. But about 6.23 a.m. the fog had come up so rapidly from the direction of Shepherd's Lane that the station was densely enveloped. I can fix the time, 6.23 a.m., in my mind from an incident in connection with a Great Northern train which was standing at the up starting signal. I am aware of the regulation as to not allowing trains to draw out of the station in foggy or snowy weather until "Line clear" has been received for the previous train. On this day I was, however, fully justified in allowing the 6.10 a.m. to so draw out.

*Henry Iles*, signalman, states : I have 20 years' service as signalman, and have been about four years at Shepherd's Lane Junction. My hours on the night of the 15th November were from 10 p.m. to 6 a.m. I left the box about 6.5 a.m. It began to grow foggy about 5.45 a.m., but was not dense up to 6.5 a.m. My mate brought me word from the inspector on duty that I should be required for fogging duty, and after leaving the cabin I proceeded to the up home signal, which is close to the cabin. By 6.10 I had fogs on the rails, but I could still see the signal. It grew thicker, and shortly after I could not see the signal arm or light until within 10 yards of the post. The first train came to a stand on the down road when I had been out fogging about 10 minutes, and I saw nothing of the second train before the actual collision took place. Although dense the fog was not, in my opinion, so bad as to prevent a driver catching sight of a signal light as he passed it.

*John Henry Bennett*, signalman, states : I have about nine years' service as signalman, and have been about two years at Shepherd's Lane. My

hours of duty were 6 a.m. to 2 p.m. on the 16th inst. I brought a message from the inspector at Brixton to my mate, Ilea, to go out fogging. At 6.14 the "Train entering section" signal from Clapham was received for the 6.2 a.m. workmen's train. It arrived at my down home signal at 6.16 a.m. There was no fogman for the down road at that time; the signal was at danger, and the train came to a stand at the signal. The collision occurred at 6.21 a.m. I had received no signal from Clapham Road for the second train, and did not see it approach on account of the fog, but a driver could, I think, at least see as he passed a signal whether it was at danger or not. The fog was more dense in the direction of Loughborough, but there was no difference, to the best of my recollection, between its condition at Brixton and at Shepherd's Lane Junction. I could see a light at about 6 a.m. at a distance of about 50 yards.

*William Whitehead*, inspector at Clapham Road Station, states: I was on duty from 4 a.m. on the 16th inst. At 6 a.m. it was misty, but not foggy. It rests with me to order out fogmen. At 6.15 a.m. it was still not thick enough to call for the services of fogmen. My instructions are that if a signal light or arm is not visible for a distance of 200 yards fogmen may be called out. It is my practice to carry out this regulation. About 6.22 a.m., when I again came out on to the platform, the fog was so much thicker that I could not have seen more than 100 yards, and I immediately sent for the fogmen. One arrived at 6.35 a.m., two at 6.50 a.m., and two at 7 a.m. After sending for them the fog became dense quite suddenly. I saw the 6.10 a.m. train leave the station about 6.17 a.m., and could then have seen the lights the required distance. The fog came up from the direction of Shepherd's Lane, more south than east.

*James Lane*, inspector at Brixton Station, states: I was on duty at Brixton Station from 4 a.m. on the morning of the 16th November. At 5.45 a.m. I could see the lights of the signal cabin from the platform; this would be about 50 yards distance. There was a mist at the time. At 5.50 a.m. I could not see the signal cabin lights. I decided then to send for the fogmen. Three would arrive on relief of duty about 6.5 a.m.; the other three I had to send to their homes for. I think they arrived about 6.20 a.m. It is the custom at Brixton not to send for fogmen so long as the lights in the signal cabin are clearly visible from the platform. This distance, on measurement, appears to be about 80 yards. The fog came on after 6 a.m. more rapidly than I expected. It was only a mist at 5.40 a.m. and it was foggy at 5.50 a.m., when I sent out for the fogmen. About 5.45 a.m. I had a conversation with collector Stevens and remarked to him that I thought it was going to be foggy. I now remember that the Company's regulations warrant the employment of fogmen when a signal is not visible at a distance of 200 yards. It was a clear morning till about 5.40 a.m. and then it began to grow misty.

*Wallace Foster*, driver, states: I have been employed as a driver about ten years. My hours of duty on the 16th November were from 3 a.m. until 12.33 p.m. I was driving the 6.2 a.m. train on that morning. My engine was a four-wheeled-coupled tank engine, bunker in front. It was fitted with the Westinghouse automatic brake, blocks on the four coupled wheels, also with a hand-brake. The power brake was in good working order. After leaving Clapham Road the

down advance signal was off, but the distant signal for Shepherd's Lane, carried under it on the same post, was at danger. I do not consider I could have seen the advance signal a greater distance than 10 yards on account of the fog, which was thick even at Clapham Road. There were no fogs at this signal. I found the home signal at Shepherd's Lane against me. The fog was as thick there as elsewhere. I saw the cabin lights before I saw the signal and brought my train to a stand with the engine opposite the cabin. I was regulating my speed on account of the fog, so as to be able to bring my train to a stand in a distance of 20 yards. I reduced my speed shortly after passing the distant signal. After standing a few minutes at the signal cabin I felt the shock of the collision. The power brake had been released on my train, and my engine was standing with the hand brake only applied. I was knocked against the bunker and shaken, and my engine was driven forward about 25 feet.

*James Cook*, fireman, states: I have 9½ years' service as fireman. My hours on the 16th November were similar to those of driver Foster. It was very foggy on this morning when we left Clapham Road. I saw neither the advance nor the distant signal under it when we approached and passed the post. I saw the light of the signal cabin at Shepherd's Lane, and also the home signals when we were about an engine's length from them. I think the driver applied his brake when passing under the foot-bridge, and we came to a stand with the engine in front of the cabin. I was thrown by the force of the collision against the front of the boiler and was cut and bruised. The power brake had been released and I had the hand brake applied.

*Thomas Wotton*, passenger guard, states: I have about seven years' service as guard. My hours of duty on the 16th November were from 6 a.m. till 3 p.m. I was the guard of the 6.2 a.m. train on that day. The train was composed of an engine and 13 four-wheeled coaches, with Westinghouse brake blocks on all wheels. Between Victoria and Clapham Road there was mist about. On leaving Clapham Road, about a train's length ahead, we ran into a thick fog. This was before reaching the advance signal. I could see the advance signal as we passed under it—it was "Off." The distant arm was at danger. The fog was about as thick until we came to a stand at Shepherd's Lane. We had reduced speed after passing the down advance signal. I was riding in the first brake van immediately behind the engine. I could just discern the home signals after we had come to a stand. After standing a few minutes, when the brakes had been released, I felt a violent shock and was thrown down, but was not injured. My lamp was knocked off the seat and was extinguished, so I had to relight it. I then got out of the van and went to the rear of the train and was told the rear carriages of the train had been smashed. I found the engine of the Greenwich train embedded in the last coach, an ordinary third class, and the trailing end of the second coach (third class) from the rear was also knocked in. I got all the passengers out of the train and took them to Brixton Station. The guard of the Greenwich train attended to the passengers who were injured. There was a second guard on my train. I did not speak to the driver of the Greenwich train. My train was driven forward about an engine's length. The leading

10 coaches of my train were close buffered. The train was marshalled in the following order:—

	Vehicles.
Second-class brake ... ..	1
Second-class carriages ... ..	2
First-class carriages ... ..	3
Third-class carriages ... ..	3
Third-class brake .. ...	1
Third-class long-buffered carriage ... ..	3
<b>Total</b> ... ..	<b>13</b>

*Thomas Davis*, passenger guard, states: I have been employed six months as guard. My hours of duty were from 6 a.m. till 3 p.m. on 16th November. I was under-guard of the 6.2 a.m. train. It was merely hazy that morning between Victoria and Clapham Road, but it grew foggy after leaving Clapham Road. At Clapham Road I could see the head guard and exchange signals at a train's length with him. I could see the down advance signal when we were about 10 yards from it. When the train came to a stand I could not see either the lights of the signal cabin or the signals at Shepherd's Lane. I was riding in the fourth coach from the rear. I was standing up when the collision occurred and was knocked down, but without being injured. I got out of the brake van, and as soon as I saw what had happened I went forward to the signal cabin and then returned to assist the injured passengers. There were about 17 passengers either injured or who complained of shock. There were passengers in the leading compartment of the trailing coach, but not in the three rear compartments. I had no conversation with the driver of the Greenwich train. I could see my head guard's light in his brake from my brake van as the train left the station, a distance of about 100 yards.

*William Bowd*, driver, states: I have about 20 years' service with the Company, and have been driving about 10 years. My hours of duty on 16th November were from 4.20 a.m. till 2.35 p.m. I was driving the 6.10 a.m. train (Victoria to Greenwich) on that morning. My engine was a four-wheels-coupled tank engine, chimney leading, and was dual fitted with the Westinghouse brake and with the necessary appliances for actuating the vacuum brake. The four coupled wheels were fitted with brake blocks, which were actuated also by a hand brake. The brake appliances were in good working order. I had used it on several occasions that morning, both with the 6.10 a.m. and the 5.28 a.m. (from Herne Hill) trains. Whilst running from Victoria to Wandsworth Road the weather was clear. It began to get hazy approaching Clapham Road. The home signal, however, was plainly visible at a distance of 200 yards. In the station itself the atmosphere was thicker, and I do not think I could have seen the starting signal at a distance of 100 yards. After passing the starting signal the fog began to grow dense, and I kept a good look-out for the advance signal and the distant signal for Shepherd's Lane. I can, ordinarily, see these signals from Clapham Road Station. But on the morning in question I could see neither of the signal lamps. I could see the signal post when I was quite close to it, but the signals are high in the air, and I failed to see them. My instructions, under these circumstances, are to assume signals are at danger. The reason I did not take the advance signal as a danger signal in

this instance and stop my train was because I was aware of the Company's regulation that advance signals are not to be used in foggy or snowy weather. I assumed, therefore, that the signalman at Clapham Road would not have made use of the advance as a stop signal. I therefore had regard only to the distant signal which, as I was not able to see it, and there was no fogman, I accepted as being in the danger position. I accordingly reduced speed and applied the brake. I had previously shut off steam. I kept the brake applied from the time I passed the distant signal post until I reached the foot overbridge. I then eased off the brake to allow the train to take the falling gradient to Shepherd's Lane. I did not again apply steam. My speed at the distant signal may have been from 10 to 12 miles an hour, and at the footbridge from eight to nine miles an hour. I had not actually re-applied the brake before the collision occurred, and I do not think my speed at the moment of the collision could have exceeded eight miles an hour. I consider that I was fully justified in running past the advance signal when I could not see it, after having been allowed to leave the starting signal in foggy weather.

The witness drew attention to the regulations of the Company regarding the use of advance signals, extracts from which are given in the Appendix.

*Alwyne Turner*, fireman, states: I have four years' service. My hours of duty on the 16th November were the same as driver Bowd's, whose fireman I was on the morning in question. The fog was not thick until we got to Clapham Road. It began to get worse when we left the station. I did not see either the advance signal or the signal post. The advance signal ought to have been "Off" in foggy weather, and we therefore assumed it was "Off." The driver shut off steam as soon as he passed the signal. I cannot say when he applied the brake or again released it. Our speed at the time of the collision may have been eight or nine miles an hour. I think a driver is justified, after leaving the starting signal in foggy weather, in passing the advance signal, even though he cannot see it.

*Albert Gribble*, passenger guard, states: I have 17 years' service with the Company as a guard. My hours of duty on the 16th November were from 6 a.m. till 11.15 a.m., and again from 5 p.m. till 6.45 p.m. I was the guard of the 6.10 a.m. Greenwich train on the morning in question. My train was composed of six vehicles in the following order:—one second-class brake, one second-class carriage, one first-class carriage, two third-class carriages, and one third-class brake. All the vehicles had four wheels with brake blocks on all wheels. There was a slight fog between Victoria and Clapham Road, and I did not notice any increase in thickness in Clapham Road Station. I was riding in the rear brake van and could have seen the starting signal from my van if I had looked for it. I could see the repeater arm under the station roof. The fog got worse after leaving the station. We ran into a belt of fog between the station and the advance signal. Though I could see the signal post I could not see either of the signals. I thought that the driver must have seen it, or else that, under the regulations for foggy weather, the advance signal was not in use. I could see the whole length of Clapham Road Station whilst we were standing at the platform. Beyond the advance signal the fog kept dense. Soon after passing the advance signal I felt the brake



applied, and it was kept applied until the collision occurred. My head was struck against the brake van partition when the collision took place and I was dazed by the shock. Neither the engine nor any of the vehicles were derailed. None of my passengers complained to me of injuries. All the carriages were close buffered.

*Mr. Goodyear*, chief inspector of the Signalling Department, states: I live at Clapham Road in the station, and had occasion to go out of doors at 6.15 a.m. on the morning of the 16th November, and took particular notice of the weather.

It was getting hazy, but I could see the lights of the advance signals both towards Brixton and Wandsworth Road quite plainly. Ten minutes later I noticed it had got thicker, but it was still clear enough for me to see signal lights a distance of 50 yards. About 6.28 a.m. the signalman sent a lad down to tell me of the collision, and I made my way at once to the spot, where I arrived about 6.38 a.m. I could see the advance signal lights as I walked under them, but the fog was growing thicker the nearer I approached Brixton. The fog was at its worst about 8 a.m., and prevailed all day.

### Conclusion.

The cause of this accident was the presence of two trains at one time in the same block section.

An examination of the evidence will make it clear that the intention of signalman Staines at Clapham Road Station was to hold the second train at the down advance starting signal until he had received the "Line clear" signal for the first train from Shepherd's Lane Junction. The conclusion may, in view of the existence of the electrical interlocking, be drawn that the advance starting signal was at danger when the second train approached and passed it; for it would not have been possible for Staines to pull the lever working that signal until it had been released by the action of signalman Bennett, at Shepherd's Lane Junction, in clearing back for the first train.

The driver (Bowd), fireman (Turner) and guard (Gribble) of the second train do not appear from their evidence to have seen anything but the post which carries the down advance starting signal for Clapham Road, and the distant signal for Shepherd's Lane Junction below it. At the time the train passed there was no fogman at this post; if there had been, the position of the distant signal alone would have been indicated to the driver in the usual manner.

In Appendix II. will be found extracts from the Company's Regulations prohibiting the use of advance starting signals in foggy weather. The meaning of the words "will not be used" is clearly that these signals are not to be used as stop signals when fog prevails. The actual movements of the levers and signal arms are necessary under all circumstances where Sykes' system of electrical locking exists as in this case. The last extract quoted in Appendix II. explains the procedure to be adopted for the signalling of trains during the prevalence of fogs or snowstorms.

Driver Bowd in his statement justifies his action in passing the advance starting signal, when he was unable on account of the fog to see whether the light indicated safety or danger, on the ground that in accordance with the Company's regulations the signal should not have been in use as a stop signal, and he was not therefore bound to determine for himself its position before passing it. The argument deserves the fullest consideration.

The regulation regarding the disuse of advance starting signals in foggy weather specifically mentions engine-drivers as one class of employes to whom the instructions are applicable (*vide* extract (1), Appendix II.).

I do not hold that the regulation in question would either excuse a driver from looking out for an advance starting signal in foggy weather, or justify him passing such a signal, if he could see it indicated danger.

On the other hand, provided that the signal was invisible, and fog signalling regulations were known to be in operation, by the presence of a fog signalman, the instruction would, in my opinion, warrant action similar to that taken on this occasion by driver Bowd.

Unfortunately the evidence given on the atmospheric conditions prevailing at the time of the accident is highly conflicting.

The fog undoubtedly came up rapidly from the south-east, obscuring Brixton and Shepherd's Lane Junction before it reached Clapham Road. It is clear that, when the 6.10 a.m. train left Clapham Road, the down starting signal light was visible from a distance of about 200 yards. [The evidence of the guard of the train on this point is, in my opinion, conclusive.] Further, it appears that the train ran into the approaching bank of fog before reaching the advance starting signal. This signal is 40 feet above the ground, and could not have been more than 10 or 12 yards distant from the driver as he stood on the footplate passing it. In view of the evidence of driver Foster and Mr. Goodyear, exception may be taken to the statement of driver Bowd that it was impossible to see the signal

light. But when the frequent variations in the density and opaqueness of fog are taken into consideration, I think his statement that he kept a good look out for the signal, and that it was impossible to see it, may be accepted as credible.

Bowd was, however, aware that there was no fogman at the signal. In the absence of fog signalmen he was not warranted in assuming that the special regulations relative to fog signalling were in force. Moreover, he practically acknowledges that, on his journey from Victoria to Clapham Road, the condition of the weather was not such as to call for fog signalling. It is difficult then to understand how he could reasonably expect one set of regulations to be in force as he approached Clapham Road Station, and another set as he left the station.

Under the circumstances I do not consider he was justified on this occasion in passing the advance starting signal without first satisfying himself as to its position.

But the regulations of the Company regarding the use of advance starting signals do appear somewhat open to misconception by drivers. For this reason driver Bowd should, I think, be held responsible rather for an error of judgment than for wilful neglect of the rule that the absence of a signal must be considered as a danger signal and treated accordingly.

Judging from the extent of damage done to the rolling stock of the first train, the speed of the following train would appear to have been at least 10 miles an hour. The circumstances, viz., a falling gradient, a sudden dense fog rendering signals invisible, and the absence of fogmen, called for the greatest caution. The speed of the train appears to me to have been greater than warranted by such circumstances. At the same time it must be recognised how the existence of fog adds to the difficulties of a driver in estimating his speed.

The rapidity with which the fog came up is, in my opinion, sufficient reason to excuse the absence of a fogman at the advance starting signal at the time of the accident.

Probably, had signalman Staines been aware of the approaching bank of fog, he would, in accordance with the regulations, have refrained from sending forward the 6.10 a.m. train until the "Clear" signal for the 6.2 a.m. train had been received. As it was, the conditions of the atmosphere in the vicinity of the signal cabin at Clapham Road Station do not appear to have been such as to have called for the application of the rule forbidding the use of the down advance starting signal. I do not, therefore, hold signalman Staines responsible for any neglect of duty.

The rules (quoted in Appendix II.) from pages 9 and 51 of the Company's Appendix, appear to require amplification so that no further case of misconception shall arise.

The Assistant Secretary,  
Railway Department.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

#### APPENDIX I.

##### DAMAGE TO ROLLING STOCK.

###### 6.2 a.m. Victoria to Holborn Train.

First-class No. 130.—Two headstocks and two quarter lights broken.

First-class No. 169.—Two headstocks and one quarter light broken.

First-class No. 117.—Four buffer rods bent (long-buffer coach).

Second-class No. 125.—One headstock broken.

Second-class No. 144.—One headstock and one quarter light broken.

Second-class No. 179.—One headstock broken.

Third-class No. 545.—One door light broken.

Third-class No. 722.—Two headstocks and four quarter lights broken.

Third-class No. 723.—Two headstocks and one quarter light broken.

Third-class No. 724.—Two headstocks and one quarter light broken.

Third-class No. 442.—One end of this vehicle badly damaged.

Third-class No. 1215. — Broken up — past repair

###### 6.10 a.m. Victoria to Greenwich Train.

Engine No. 549. — Buffer plank and plate damaged; both buffer castings, leading end broken; Westinghouse and vacuum train-pipes broken; both tool boxes smashed; both leading brake hangers broken; leading tie rod and coupling brake rods bent; chimney knocked off and slightly damaged; smoke-box lubricator slightly damaged; leading coupling broken; left leading sand pipe broken; stay plate bent between frames; bolts out of chimney got into slide valves and condensing boxes.

Third-class No. 532.—One buffer rod broken and three bent.



## APPENDIX II.

## EXTRACTS FROM THE COMPANY'S APPENDIX TO BOOK OF RULES AND REGULATIONS.

## (1.) Page 9—

*"Fog Signalling."*

Instructions to Station Masters, Engine-drivers, Signalmen, and all concerned.

During Fogs and Snowstorms . . . . .

The calling-on arms and advance starting signals (*see* page 100) will not be used during such weather."

## (2.) Pages 50 and 51—

*"Snowy or Frosty Weather."*

Regulations to be observed by the Officers and Servants of the Company in all Departments.

Advance Starting Signals and Calling-on Arms.

These must not be used in snowy or foggy weather. *See* page 9; *see* also Rule 45 (d)."

## (3.) Page 100. "Regulations for Train Signalling . . . ."

"4 (b.) . . . . .

It must be distinctly understood that, during the prevalence of fogs or snowstorms, trains must not be passed forward to advance starting signals, except under special authority from the station master . . . and then only, provided a fogman is at the post, but not otherwise. During such weather no train or engine must be permitted to leave a station till the "Clear" signal has been received from the signal box in advance, showing that the section ahead is clear."

Printed copies of the above Report were sent to the Company on the 16th January, 1902.

## WEST LONDON EXTENSION RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
January 13th, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 31st December, 1901, the result of my inquiry into the cause of the accident which occurred on the 23rd December, about 7 a.m., near Chelsea Station on the West London Extension Railway.

In this case, the engine of the 6.40 a.m. down passenger train (Waterloo to Richmond) collided with the rear brake van of the 4.58 a.m. down goods train (Hither Green to Willesden) as the latter was on the point of coming to a stand at the down home signal at Chelsea Station.

The guard of the goods train was badly bruised and injured, and 17 passengers have complained of slight effects of shock. The damage to permanent way was inconsiderable, but six waggons of the goods train, as well as the rear brake van, were thrown off the rails. A list of damage to rolling stock is given in the Appendix.

The passenger train consisted of a four-wheels-coupled bogie tank-engine, running chimney first, and eight six-wheeled coaches. It was fitted with the vacuum automatic and steam brake actuating blocks on 32 out of a total number of 48 coach wheels, and on the four coupled engine wheels. This train was the property of the London and South-Western Railway Company.

The goods train, which belonged to the London and North-Western Railway Company, comprised a six-wheels-coupled tender engine, with the steam brake applied to all 12 wheels of the engine and tender, a six-wheeled (20 ton) brake van, 23 empty waggons and a four-wheeled (10 ton) brake van.

The atmosphere was foggy at the time of the accident.

*Description.*

The West London Extension Railway is the joint property of four Railway Companies, viz., London and North-Western, Great Western, London and South-Western, and London, Brighton and South Coast.

The scene of this accident lies between Battersea and Chelsea Stations on the Middlesex bank of the Thames.

There are the usual two lines of rail between the stations named running generally in a north and south direction. Both trains were travelling on the down line and were in the same block section.

The section is controlled at the south end by Battersea Station signal cabin, and at the north by Chelsea Dock Junction signal cabin. The last-named cabin is situated about 90 yards south of Chelsea Station on the up, or east, side of the railway, and is distant about 1,380 yards from Battersea signal cabin on the Surrey side of the river.

The down home and distant signals, controlled by Chelsea Dock Junction, are placed 185 and 710 yards respectively south of that cabin. The down advance starting signal, worked from Battersea, is about 300 yards north of Battersea cabin.

The gradient, from the northern extremity of the Thames viaduct, at which point the Chelsea down distant signal is situated, falls towards Chelsea Station at an inclination of 1 in 100.

The point of collision was between the Chelsea down distant and home signals, about 180 yards from the latter, and therefore about 365 yards from the Junction cabin.

### *Evidence.*

*Robert James Mansell*, signalman, states: I have about nine years' service, and have been signalman at Chelsea Dock Junction nearly two years. I came on duty on Sunday, 22nd December, at 6 p.m., and remained on duty until 7 a.m. on Monday, 23rd inst. There is no roster in my cabin showing the hours of duty. I have not been officially informed that my tour of duty terminated at 7 a.m. My previous spell of duty was from 10 p.m. on Saturday night until 7 a.m. Sunday. The Sunday night tour of duty comes round once every three weeks. On Monday, 23rd December, after accepting the 6.38 a.m. South-Western train from Clapham Junction to Twickenham when it was offered me by Battersea cabin, and clearing back for it, I took on the North-Western 4.58 a.m. goods train *ex* Hither Green. I did not book the trains between 6 a.m. and 7 a.m., as I was cleaning out the signal cabin. I therefore cannot say what were the times when I accepted these two trains. After taking on the goods train, for which I did not pull off any signals, I went to the coal-cellar for some coal, and was away for about a minute or two. When I came back to the cabin, thinking I had not cleared back for the Twickenham train, and forgetting all about the goods train, I sent "Train out of section" signal to Battersea for the first-named train. I thus cleared back twice for the same train. When the South-Western 6.40 a.m. passenger train from Waterloo was then offered me by Battersea, I accepted it at once. When I came back to the cabin after fetching coal, I looked towards Battersea, and could see the back light of my down home signal. But I saw no engine head lights, and completely forgot the fact that I had accepted the London and North-Western goods train. I pulled off no signals for the 6.40 a.m. passenger train until after I heard a noise, which I took to be an explosion in the adjoining gas factory. The noise must, however, have been that of the collision. I then pulled off the calling-on arm for the passenger train. Shortly afterwards an engineman from the North-Western goods train came up and informed me of the collision and asked what I had let into the rear of his train. So far as I am concerned I have been in the habit of neglecting to book trains in the usual way during the morning when I have been engaged in cleaning the cabin. I do not know if the station inspector knows of this habit. The line inspector usually examines the train books and on one occasion I was

informed by him that the books were not properly kept. There are intervals during the early morning hours, when trains are not running, when I could have done this cleaning. I do not, however, do the cleaning at these times because it would have to be done again at the end of my tour of duty.

*William Calder*, signalman, states: I have 24 years' service, and have been signalman at West Brompton a little over a year. On the 23rd December I came on duty at 5.45 a.m. and was due off duty at 2 p.m. I was off duty from 7 a.m. on Saturday morning, 21st December. I received the "Is line clear" signal for the South-Western 6.38 a.m. down passenger train at 6.49 a.m. and accepted it at once. The "Train entering section" signal reached me at 6.52 a.m., and the train arrived at 6.55 a.m. I did not clear back to Chelsea for the South-Western train, but held the block in order to allow the North-Western Company's up goods train, which arrived at West Brompton at 6.57, to be backed across from the up line to the Fulham goods yard. I failed in this instance to carry out my blocking back instructions when carrying out this shunting operation. I should have cleared the South-Western train, and asked for the block, but partly on account of the mist, and partly because I asked the signalman at Chelsea on the telephone whether he had any train following the 6.38 a.m. passenger train and received "No" from him as an answer, I did not carry out my instructions as regards blocking back.

*Frederick Thomas Cudd*, signalman, states: I have about 14 years' service, and have been signalman at Battersea about 11 years. On the 23rd December I came on duty at 5.30 a.m., and was due off at 2 p.m. My previous tour of duty was from 2 p.m. till midnight on Saturday, when the cabin was switched out. The 6.38 a.m. down passenger train to Twickenham passed my box a little late, and was accepted by Chelsea at once when I offered it. The North-Western goods train followed, a good deal behind its booked time, and was also accepted when I offered it. I received from Chelsea the "Section" or "Line clear" signal behind both of these trains. I do not think the North-Western goods train was checked at Battersea. The South-Western Company's 6.40 a.m. down passenger train stood at Battersea Station about a minute or a minute-and-

a-half. It was accepted by Chelsea immediately I offered it, and I sent the "Train entering section" signal for it at once. It was a foggy morning, and I was not, therefore, using my advance starting signal. We do not book train times at Battersea except in the case of delays to trains.

*William Rhodes*, driver, states: I have 22 years' service with the London and North-Western Railway, and have been driving about 10 years. I came on duty on 23rd December at 2 a.m. and was due off about 9 a.m. I was driving the 4.58 a.m. goods train, Hither Green to Willesden. My engine was No. 2115, a six-wheels-coupled tender engine, driving chimney in front. It was fitted with the steam brake, with blocks on the six engine and six tender wheels. We were running late by the time book on the morning in question, but about up to our usual time. It was a foggy morning, and I do not think I could see the signal lights near Battersea at a distance of 50 yards. The Battersea down advance starting signal was "Off," and the Chelsea down distant signal at danger when I passed them. I saw the Chelsea down home signal when I was five or six waggon-lengths distant, and was just coming to a stand, the signal being at danger, when the South-Western passenger train struck the rear of my train. The steam brake was applied at the time. The force of the collision drove us past the signal post about the length of three waggons. There were 23 empty waggons, one six-wheeled (20-ton) brake van and one four-wheeled (10-ton) brake van behind my engine.

*Herbert Nichols*, fireman, states: I have 5½ years' service with the London and North-Western Railway. I was firing with driver Rhodes on the 23rd December, and had similar hours of duty. I have heard his evidence as to the distance at which signal lights were visible on that morning and agree with it. When the collision occurred I was applying the hand brake, and the steam brake had been released. Our speed when we were struck was very low.

*Joseph Evans*, goods guard, states: I have about 8 years' service with the London and North-Western Railway, and was brakesman with the 4.38 a.m. goods train on the 23rd December. My hours of duty were from 1 a.m. till 11 a.m. The train consisted of a six-wheeled brake van, 23 empty four-wheeled waggons, and a four-wheeled brake van at the rear of the train in which I was riding. It was a foggy morning, and I could not see the Battersea advance starting signal at a distance of more than four or five waggon-lengths. It was quite as thick at the Chelsea distant signal. This was against us, and I stood to my brake and kept it applied all down the falling gradient. We were just coming to a stand, and I had released the hand brake, when I heard a noise behind us, and, looking out over the door, I saw a green head light. I jumped out of the brake immediately and was rather badly injured in the back and arm, as I fell against a low wall. But I am now getting better. This is the fourth or fifth accident I have been in.

*John Hunt*, driver, states: I have had 30 years' service with the London and South-Western Railway, and have been a driver 20 years. I know the London district very well. I came on duty on the 23rd December at 3.30 a.m., and would have completed my tour about 1.30 p.m. I was driving the 6.40 a.m. passenger train,

Waterloo to Richmond, on the morning in question. My engine was No. 374, a four-wheels-coupled bogie tank engine, running chimney first. It was fitted with the vacuum automatic and steam brake, working blocks on the four coupled engine wheels. The brake was in thoroughly good working order, and the gauge showed about 19 inches of vacuum on leaving Battersea. There was a thick fog, and I could not see the signals until close upon them. After waiting at Battersea a minute or two for the signal to come "off," the train proceeded. The advance starting signal was "off." I could see it at a distance of about 40 yards. The Chelsea distant signal I could see at about the same distance. It was at danger, and I shut off steam on passing it and applied the automatic brake. The first indication I had of the presence of the London and North-Western goods train was the view of the three tail lights when I was about 16 yards distant. I applied the brake fully at once. We were travelling at a speed of about 10 miles an hour at the moment of the collision. I cannot say whether the goods train was actually moving. Neither I nor my fireman was injured. The weather was, I think, thicker at Chelsea than anywhere between Chelsea and Waterloo. I was fully prepared to come to a stand at the Chelsea down home signal, after finding the distant signal at danger. We left Battersea at 6.57 a.m. by my watch.

*Charles George*, fireman, states: I have been nine years in the service of the London and South-Western Railway Company, and have been a fireman four years, and know the London district well. My hours of duty on the 23rd December were the same as Driver Hunt's, with whom I was working the 6.40 a.m. down passenger train. We were stopped at Battersea Station nearly two minutes waiting for the signal. The advance signal was off. We could only see the signals when close to them. The Chelsea down distant signal was at danger when we passed it, and the driver shut off steam and prepared to stop at the home signal. He applied the automatic brake when we were about half a train's length past the distant signal. I saw the goods train in front of us when we were about 15 yards distant. We were travelling at a speed of from 10 to 15 miles an hour when the collision occurred.

*Josiah Marshall*, passenger guard, states: I have been about ten years in the service of the London and South-Western Railway. On the 23rd December I came on duty at 6.30 a.m. to work until 4.15 p.m. I was guard of the 6.40 a.m. down passenger train, Waterloo to Richmond. The train consisted of eight six-wheeled coaches, fitted with the vacuum automatic brake, working blocks on 32 out of the 48 coach wheels. The weather was foggy on the morning in question, but it was thickest on the Middlesex side. I could see the starting signal at Battersea Station at about a train's length, say 80 to 100 yards. We were kept waiting about two minutes at Battersea. I did not see the advance starting signal or the Chelsea down distant signal. I did not notice the automatic brake being applied until it was suddenly exhausted by a sudden application, and the next thing I knew was my head knocking against the side of the van. When I came to my senses I lit my hand lamp, which had been extinguished. I then got down and went to the head of the train, and found seven goods waggons off the road, two of them fouling the up road. Three or four of the

passengers in my train complained of the effects of shock. I then went back to the distant signal to protect my train by laying down fog signals, and then came back to my van. After the road was cleared the engine and train went on to Richmond. We were travelling at a speed of not more than 16 miles an hour at the time the collision occurred. The brake gauge in my van showed 17 inches of vacuum on leaving Waterloo.

*William Keeble*, line inspector, states: It is my duty to examine signalling train books and

to report irregularities to the superintendent. I cannot say when I last examined the train book at the Chelsea Dock Junction cabin. I examine the books two or three times a week. I am aware that at certain signal cabins, one of which is Chelsea Dock Junction, signalmen omit to book trains at certain hours of the day. This is done with my knowledge, the signalmen having instructions to do the best they can in the way of booking trains. Their duties are so heavy at certain times that in my opinion they are not able to book all the trains. The superintendent is aware of these instructions.

### *Conclusion.*

The cause of this collision is clearly set forth in the statement made by signalman Mansell, who was in charge at Chelsea Dock Junction cabin.

He acknowledges that he accepted the goods train from Battersea, and then, shortly afterwards, forgot all about the fact that it was travelling in the block section, and was approaching his down home signal. Although, therefore, his block instrument indicated "Train on line," he sent the "Out of section" signal to Battersea, and accepted the following passenger train. The driver of the passenger train was accordingly authorised by signal at Battersea to enter the next section, and owing to the fog did not see the tail lights of the goods train in front of him until too late to avert the collision.

The immediate responsibility for the accident therefore falls upon signalman Mansell, who failed to carry out the block regulations in permitting the passenger train to enter the section already in occupation by the goods train.

It is difficult to see what excuse can be made for such culpable forgetfulness, unless it be found in the fact that Mansell had been on duty about 13 hours at the time of the occurrence, and had more onerous work to do than he could efficiently perform.

I am informed by the Superintendent of the joint line that between the hours of 6 p.m. (Sunday) and 7 a.m. (Monday) signalman Mansell dealt with a total number of 59 trains. Of this number nine trains were signalled between the hours of 6 a.m. and 7 a.m. on Monday.

It further appears that the signalman's official tour of duty on Sunday night terminates at 6 a.m. The extension of the tour to 7 a.m. seems to have been made some time back, before Mansell was appointed, by the signalmen themselves, to suit their own convenience.

Taking into consideration the work and responsibility at Chelsea Dock Junction, it is clear that a signalman's tour of duty on Sunday should not be permitted to exceed 12 hours.

As regards the work of cleaning a signal cabin, I do not consider that it should be accepted as an excuse for the non-performance of other and more important duties, such as the booking of trains. I think it would have been possible on this tour of duty for Mansell to have arranged his work so that it should all be duly performed.

That he did not so arrange his work is perhaps due to the fact that, as given in evidence by Inspector Keeble, the officials of the joint line have not insisted upon the instructions, as regards the booking of trains, being rigidly adhered to. Inspector Keeble states that in his opinion at certain times in the day the signalling work is so heavy that it is not possible for signalmen to book trains. This, however, can scarcely be the case during the early hours of Monday morning.

It is an unsatisfactory condition of affairs. For train booking should, to be effective, be carried on continuously. Otherwise, it would appear preferable to discontinue the practice altogether.

The question whether the signalmen on this joint line are able to efficiently perform all their duties without further assistance, and the lack of discipline which is evidenced by the non-existence of rosters of duty for signalmen, by the unauthorised alterations in the hours of duty, &c., are points which call for the serious consideration of the managing committee.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

## APPENDIX.

## DAMAGE TO ENGINE, CARRIAGE, AND WAGGON STOCK.

*London and North-Western Railway Company's Goods Train.*

Trader's waggon, No. 8,823	...	} Entirely destroyed.	Trader's waggon, No. 57,373	...	} Badly damaged.
Griff Colliery waggon, No. 476	...		" " No. 54,321	...	
Refrigerator van, No. 46,573	...		" " No. 56,296	...	
			Brake van, No. 1,040	...	

*London and South-Western Railway Company's Passenger Train.*

Engine, No. 374, leading buffers and vacuum hose pipe broken.	Third-class carriage, No. 588, quarter light broken, 2 buffer rods bent, and 2 pads damaged.
Third-class brake, No. 610, end light broken, 2 buffer rods bent, and 2 pads damaged.	Second-class carriage, No. 239, quarter light broken.

Printed copies of the above Report were sent to the Companies concerned on the 7th February, 1902.

## APPENDIX B.

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### REPORTS OF THE ASSISTANT INSPECTING OFFICERS OF RAILWAYS ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

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#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
16th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of December 5th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 26th October to fireman William Love, near Fallside, on the Caledonian Railway.

In this case a mineral train was standing on the up main line waiting to be crossed over on to the down main line for entrance to a single line branch leading to Hamilton Palace Colliery. Love, who was working with the train as fireman, stepped off the engine to cross the down line for the purpose of obtaining the train staff, but, failing to observe the approach of the 12.10 p.m. passenger train, he was struck by the engine and instantly killed.

The accident was attributable to want of caution on the part of the deceased, as had Love taken the precaution to look ahead before attempting to cross the line he would have seen the approaching train; moreover, there was no necessity to obtain the staff until the goods train had passed over on to the down line.

Owing to the position of the signal-box at this place it has been customary (with the knowledge of the officials in charge of the working) for either the driver or fireman to leave the engine to procure the staff, evidently to suit the convenience of the signalman. If Rules 134 and 135 have to be taken in conjunction with the regulation, which states that it is the duty of the signalman to hand the staff to the driver, it would appear that such a practice should not be allowed, and therefore the Company should make arrangements whereby their instructions will be strictly carried out in future.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
20th January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of the 11th January, the result of my inquiry into the circumstances attending the accident which occurred on the 2nd December to surfacemen Andrew Tollan and Robert Aird, near High Blantyre, on the Caledonian Railway.

In this case, after the 8.50 a.m. passenger train had left Meikle Ernock for High Blantyre, a platelayer's lorry, in charge of ganger B. Boyle, was run out of the sidings on to the down main line to follow the passenger train to the latter station.

Seven men, including the ganger, were riding on the lorry. After passing Udston Colliery Signal Cabin, which divides the section between Meikle Ernock and High

Blantyre, and when the lorry was about 500 yards distant therefrom, an engine and brake-van, running on the same line, ran into it, and one of the men was thrown down the embankment and another run over, both being somewhat injured.

Robert McKie, signalman at Meikle Ernoch, was advised by Boyle that he was going to run the lorry out on to the main line to follow the passenger train, but McKie states that he was not informed as to its destination or what work was going to be performed. A flagman was not left to protect the lorry in accordance with Rule 248, and McKie was aware of this. At 9.0 a.m. he accepted and forwarded an engine and brake-van for High Blantyre which passed Meikle Ernoch box at 9.5 a.m., and was belled clear from Udston Colliery box at 9.8 a.m. by signalman Sanderson, who pulled off all signals after obtaining acceptance from High Blantyre.

McKie admits that he failed to advise Sanderson that a platelayer's lorry had left his station following the passenger train, and Sanderson did not notice the lorry until it had reached his starting signal, and only when the engine and brake-van, which he had accepted, was passing his box. He endeavoured to attract the driver's attention but without avail, and then threw the starting signal to danger.

There is a clear view of the line from Udston signal cabin to the place where the collision took place, but neither driver Blackburn nor fireman Pert noticed the lorry ahead of them although they were both disengaged at the time, and it was a clear morning.

Nelson, one of the men on the lorry, saw that all signals were off when passing Udston, and called Boyle's attention to the fact, but he replied that it was all right.

Foreman Boyle was greatly to blame for failing to place a flagman at Meikle Ernoch, in accordance with Rule 248. He has since been dismissed the service.

Signalman McKie committed a grave error by permitting the engine and brake-van to enter the section ahead when he had no assurance that it was clear, and I cannot but think that had signalman Sanderson been paying proper attention to his duties he would have seen the lorry passing his box and been able to stop the engine by signal before the collision took place.

Driver Blackburn and fireman Pert could not have been keeping a proper look-out, otherwise they would have seen the lorry at least 450 yards before striking it; and, further, it appears strange that the men on the lorry (knowing a flagman had not been left behind for their protection) should not have been keeping a better look-out themselves.

Altogether the accident seems to have occurred through a very lax system in working, which the Company will, no doubt, take steps to remedy.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
7th February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of January 20th, I have held an inquiry into the circumstances attending the accident which occurred on December 28th, at the General Terminus Goods Station of the Caledonian Railway at Glasgow, whereby capstanman Thomas Purvis was injured.

About 12.20 p.m. Purvis was engaged in drawing three waggons loaded with coal towards No. 2 crane by means of a capstan. Owing to the distance between the waggons and the capstan, it was necessary to use two ropes joined together. The ropes are fitted with rings at the end, and these rings are coupled together by means of a "C"-shaped link. Owing to the rope being wet, it slipped on the drum of the capstan and the strain was momentarily released. One of the rings slipped out of the "C" link and the loose end of the rope struck Purvis, bruising his right leg.

I consider that the accident was due to misadventure. In order to prevent a similar occurrence in future, the Company have agreed to modify the design of the "C" links

and rings on all the ropes, in such a way that it will be almost impossible for the ropes to become accidentally parted.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CHESHIRE LINES.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

29th November, 1901.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of November 20th, I have held an inquiry into the circumstances attending the accident which occurred on October 28th, at the Central Station, Manchester, on the Cheshire Lines, whereby driver Reuben Shaw, in the service of the Midland Railway, was injured.

Shaw was in charge of a passenger tank engine, which was standing on No. 7 road opposite the water column, about 10.20 a.m. The engine was booked to work the 11.10 a.m. passenger train to Stockport, the coaches of which were standing in No. 1 platform road. Whilst waiting for the signal to allow him to proceed to his train, Shaw left his engine in order to go to the closet. He instructed his fireman, Samuel Pace, to take the engine ahead and set back into No. 7 road if the signals were lowered before his return. The engine had just started when Shaw returned, and he walked across the station to No. 1 road to join it on its arrival there. He walked down the "milk" road, which lies next to No. 1 road, and heard the engine coming up behind him, but he inadvertently stepped foul of it, and was struck on the shoulder and knocked down, his collar bone being broken.

The accident was mainly due to want of caution on the part of driver Reuben Shaw, but at the same time he was acting contrary to regulations in permitting his fireman to work the engine single-handed.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### DUMBARTON AND BALLOCH JOINT LINE.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

31st January, 1902.

I HAVE the honour to report, for the information of the Board, of Trade in accordance with your Order of January 15th, the result of my enquiry into the circumstances attending the accident which occurred on the 28th December, whereby surfaceman John McGuire was killed, and stationmaster Richard Alison and two other surfacemen were injured at Alexandria, on the Dumbarton and Balloch Joint Line.

In this case it was necessary to unload a boiler weighing 5 tons 10 cwts. from a waggon standing in No. 3 siding, and for this purpose an 8-ton travelling crane was supplied by the Caledonian Railway Company and placed on an adjacent siding between the waggon and the road lorry on to which the boiler had to be loaded. When the crane was ordered Alison applied for a competent man to be sent with it, but as no one arrived he decided to perform the work under his own directions as he was anxious to clear the waggon and oblige the consignees. Alison accordingly obtained the services of five surfacemen, and with the further assistance of a number of men supplied by the Dalmonach Company, he had the jib which was uncoupled and riding on a runner truck, placed in position, the balance weight screwed out as far as possible, and the waggon supporting the jib clamped to the metals, the clamps being secured by four small chains wound round the rails. When this was done Alison evidently considered the crane was sufficiently anchored, and after placing a sling round the boiler with a guy rope attached;



the heater was raised. No trouble was experienced in lifting, but when slewing the jib the boiler rested for an instant on the edge of the runner waggon and releasing itself "took charge," with the result that the crane waggon capsized, breaking all connections with the rails, and McGuire was crushed below the balance weight and killed, and Alison had both legs severely injured. McEwan and Stevenson were also injured, but only slightly.

The crane, which is an ordinary travelling hand crane riding on a four-wheeled truck, is fitted with holding-down clamps and girders which may be drawn from beneath the waggon frame and packed up to increase the bearing surface. Unfortunately these girders were not used, and to this omission the accident must be attributed.

It is to be regretted that Alison attempted to perform the work, as he had no experience of the precautions necessary when using travelling cranes. His action, however, can only be imputed to excess of zeal.

When cranes of this description are employed skilled men should always be in charge, and station agents and others inexperienced in their use should be strictly prohibited against performing such work on their own responsibility.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR, 13th November, 1901.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of October 22nd, I have held an inquiry into the circumstances attending the accident which occurred near Mexborough, on the Great Central Railway, on October 11th, whereby platelayer Arthur Vardy was fatally injured.

Vardy was one of a gang of platelayers of which William Parnham the leading man was in charge during the absence of the ganger, who was going over his length. These men were employed at about 7 a.m. in removing ballast from the "six-foot" to the "four-foot" way of the up main line about 150 yards west of the Ferryboat signal-box. Parnham noticed a goods train approaching on the down line and told the men to leave the "six-foot" way and start levelling the ballast on the up line. At the same time he specially cautioned them to keep a good look-out as the weather was foggy. Vardy was working between Parnham and a platelayer named John Jones. They were about five yards apart, Jones being in the most easterly position and consequently nearest to trains approaching on the up line. Just as the goods train was passing on the down line, a booked light engine came up on the up line. Jones did not see the engine until it was within 20 yards of him, when he shouted to the other men and just managed to step clear of it. Parnham also stepped clear, but Vardy was knocked down by the engine and fatally injured. The driver of the engine did not see the men, and knew nothing of the accident till he returned to Mexborough. He states that he was keeping a good look-out, and from the evidence given as to the density of the fog I do not consider that any blame should be attached to him. The fog appears to have been mainly on the ground and constantly moving, being much worse in some places than in others.

Under the circumstances I am of opinion that Parnham should certainly have made his gang stand clear of both lines during the time that the goods train was passing on the down line, in accordance with Rule 273, as the noise of the passing train would render it especially difficult for Jones to detect the approach of the light engine, and I attribute the accident to Parnham's want of judgment in this respect.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

19th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of December 4th, I have held an inquiry into the circumstances attending the accident which occurred on November 25th, at Nottingham, on the Great Central Railway, whereby goods porter John Owen was injured.

About 4.40 p.m. Owen was engaged in drawing some waggons into the goods warehouse by means of a capstan. The capstan rope had been broken earlier in the day and then knotted together. The loose ends at the knot were about three inches in length, and in trying to keep these ends free of the coils on the capstan Owen got one of his fingers crushed. I was unable to ascertain who was responsible for making such a rough joint in the rope.

The presence of knots in capstan ropes is not at all desirable, and the Company's representatives have now agreed to make arrangements to have spare ropes on hand and to have the broken ropes properly spliced instead of being joined by knots. These precautions should prevent similar accidents in future.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

30th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of December 4th, the result of my inquiry into the circumstances attending the accident which occurred on the 19th November to fireman A. J. Cullington at Norwich Victoria on the Great Eastern Railway.

In this case Cullington was working as fireman with a light engine which had run from Norwich Thorpe to Norwich Victoria. On arrival at the latter station at 8.25 a.m. it was necessary to cross the engine from the "Down" to the "Up" line. When the engine had been brought to a stand clear of the cross-over points, driver Bennett asked Cullington if he had looked into the screen, to ascertain the amount of water in the tender, and then immediately went ahead. Meanwhile Cullington had gone to the back of the tender, and in returning his head came in contact with an overbridge, and he was thrown down and severely injured.

Cullington was aware that the engine was about to pass below the bridge, therefore I consider he is to blame for needlessly placing himself in a position of danger.

It was, however, unwise on the part of Bennett to address such a remark to his fireman until he knew that the work could be performed in safety, when the engine was at rest, and for this, and for failing to satisfy himself that Cullington was on the footplate before starting the engine, I consider he also is to blame.

I understand that water gauges are being attached to the tenders, but as a considerable time may elapse before the whole stock is fitted in this manner, I think the Company might with advantage issue a notice drawing the attention of enginemen to the danger of going to the back of tenders while engines are in motion, or likely to be moved, and warning them against such a practice.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
30th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of December 10th, the result of my inquiry into the circumstances attending the accident which occurred on the 21st November, 1901, to horselad H. Foulser, at North Walsham, on the Great Eastern Railway.

In this case Foulser was in charge of two shunt horses, and while they were taking water from a barrel in the goods yard the leading horse took fright and bolted. Foulser, with the intention of stopping them, dropped the horse-chain hook to engage a stretcher bar, and his hand was caught between the chain and rail and somewhat injured.

The mishap appears to have been accidental, but at the same time it is desirable that only horses thoroughly used to the work and not easily frightened should be employed in goods yards.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
29th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of November 7th, I have held an inquiry into the circumstances attending the accident which occurred on October 3rd at the Copley Hill engine shed at Leeds, on the Great Northern Railway, whereby cleaner Edward Wyatt was injured.

Wyatt and another cleaner were engaged in cleaning the motion of a six-wheels-coupled tender engine (No. 800) which was booked to leave Copley Hill at 5.15 p.m. About 4.30 p.m. fireman Fred Luty, who was booked to work with the engine, came into the shed, and placed the necessary head and tail lamps on the engine. For convenience in oiling he wished to move the engine ahead about a quarter of a turn. While on the footplate he shouted out "Look out 800!" and then went to the bench to look for a file. On returning to the footplate he again shouted out "Look out 800!" released the hand brake, and opened the regulator, the engine having been put in forward gear by the cleaners for convenience in cleaning. The warning was not heard by Wyatt or his mate, and Wyatt, who was cleaning the right-hand big end, fell, his thigh being bruised between the eccentric rods.

The following instruction is posted in the shed:—"Shed shunters or enginemen must not move any engine, whether in steam or otherwise, without first ascertaining that cleaners or others are not engaged in any work about the engine." The fact that the engine was in forward gear when Luty got on to it, should have been an indication to him that someone was working on it, as, according to the regulations, all engines standing in the shed must be left in mid-gear. The shed appears to have been fairly quiet at the time of the accident, and it is a matter for surprise that the cleaners did not hear the warnings given by Luty, but the accident must be attributed to the failure on Luty's part to carry out strictly the instruction quoted above. Luty also failed to sound the whistle before moving the engine. Had he done so, it is probable that the cleaners would have heard it in time to get clear.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

3rd January, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with your Order of December 5th, I have held an inquiry into the circumstances attending the accident which occurred on October 26th at Dewsbury on the Great Northern Railway, whereby Thomas Clifford was injured.

About 10.30 a.m., Clifford, who was in the employment of a coal merchant, was engaged in unloading coal from a waggon standing in the "coal" road. There was a fog at the time, and while Clifford was standing on the waggon door, which was supported in a horizontal position by means of a prop, the waggons in the road were moved slightly owing to other waggons being placed in the road at the top end. The prop slipped from under the door, and Clifford, who was not aware that the waggons were about to be moved, fell to the ground, his side being bruised.

Assistant shunter Edward Sims, who was in charge of the shunting operations, wished to place two waggons in the "coal" road just clear of the points at the top end. He was unable, owing to the fog, to see what waggons were in the siding, but was under the impression that these two waggons would not come into contact with any others already in the siding. He accordingly instructed shunter George Mitchell to turn the waggons into the "coal" road. Mitchell states that he shouted and whistled to warn any men who might be unloading in the "coal" road, as he thought that the waggons would come into contact with the others in the siding, and then allowed the waggons to run in, with the result that Clifford was injured.

Owing to the density of the fog it was impossible for Mitchell to properly carry out Rule 112A without going down the siding, and I attribute the accident to his neglect in this respect.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

21st January, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 9th, I have held an inquiry into the circumstances attending the accident which occurred on December 12th, at Hitchin, on the Great Northern Railway, whereby goods guard Albert Newbery was injured.

Newbery was guard of the 1.20 p.m. goods train from King's Cross to New England, which arrived at Cambridge Junction signal-box at Hitchin at 5.27 p.m. The train was set back into the "Arlesey" siding, and about four shunts were made by the train engine, the down goods line which crosses the Midland main lines being used as a shunting spur. After the shunting was completed, the train was coupled up by Newbery, who signalled to the driver that the train was ready to proceed, and then got into his van. The driver started the train, which ran into the buffer stops about 10 yards beyond the yard signals, instead of proceeding along the down goods line.

The engine was slightly damaged, and Newbery was thrown down in his brake, sustaining injuries to his head. The engine was standing about 40 yards from the yard signals when it started to leave the yard, and the driver, Thomas Vines, and his fireman, Alfred Baxter, state that immediately before the train started the signal was "off" for them to proceed on the down goods line, but neither of them looked at the signal again. Signalman William Disbrey was on duty in the Cambridge Junction signal-box, which is almost opposite the yard signals, on the far side of the main lines. He states that he put the signal in question to danger before the engine had passed it when backing on to the train for the last time. After the engine was over the points he reversed them and then

set the road for an up Midland passenger train, which passed his box at 5.54 p.m. There is, unfortunately, no independent evidence as to the exact time when the signal was placed at danger, but there is no doubt that the train passed the signal when it was in that position. The signals were on the firemen's side of the engine, and if he had kept his eye on the signal until the engine had passed it I have no doubt the accident would have been averted. Driver Thomas Vines was well aware that this signal is liable to be put at danger at any moment, in order to permit of the passage of Midland trains, and I consider that he is to blame for not satisfying himself that the signal was "off" while he was approaching it.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

18th March. 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 21st, the result of my inquiry into the causes of the fatal accident which occurred on the 17th December to platelayer J. Carrington, at Nottingham, on the Great Northern Railway.

About 3 p.m. Carrington was engaged screwing up fish plate bolts on the down line a few yards distant from London Road high level station, when his attention was evidently attracted to a train leaving the station on the up line, and failing to notice the approach of a train on the down line, Carrington was knocked down and run over with fatal results.

From the place where the accident occurred there is a clear view of 80 yards, and although this distance is not great, the work Carrington was engaged upon was of such a nature that he could without inconvenience keep a good look-out while performing his duties and have ample time to step clear of the rails as necessity arose, and for this reason a look-out man was not considered necessary.

Carrington was thoroughly experienced in the work, knew the running of the trains, was well acquainted with the place, and I have no doubt fully realised that a constant look-out was essential, but owing to a momentary abstraction his attention was withdrawn from the line at which he was engaged and he was run down and killed.

This seeming want of alertness may have been due to the insufficient rest which Carrington had been allowed, as I find that from midnight on the day prior to the mishap he had worked  $13\frac{3}{4}$  hours, with intervals of half-an-hour and one hour for meals followed by  $6\frac{1}{2}$  hours' rest, when he was again called out at 11.30 p.m. to work another  $4\frac{1}{2}$  hours, and, after a rest of only 3 hours, which by the way was taken in the platelayers' cabin, he again commenced duty and had worked  $8\frac{1}{2}$  hours to the time of the accident with the usual allowance for meals; therefore the deceased man had worked  $23\frac{3}{4}$  hours out of a total of  $39\frac{1}{2}$  hours.

This duty is certainly excessive, and although it is explained by the fact that a severe storm had been raging during the night, yet I consider that foreman platelayer Smith should not have allowed Carrington and the other men under his charge to commence work after being off duty for such a short period, and I think the Company should take steps to prevent a repetition of such working, by impressing their foremen platelayers and others in authority with the necessity for providing relief, so that the men under their control will not be required to work such excessive hours, nor allowed to commence work after such short intervals of rest.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## GREAT NORTHERN RAILWAY OF IRELAND.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

9th December, 1901.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of November 19th, the result of my enquiry into the circumstances attending the fatal accident which occurred on the 5th October to cleaner Joseph Butler at Belfast Steam Sheds on the Great Northern Railway of Ireland.

In this case, as Butler was passing between two engines which were standing a few feet apart on No. 5 siding, one of the engines which was in steam was moved by firelighter James Martin for the purpose of placing it over the pit, and Butler was caught between the buffers and crushed with fatal results.

Martin had no authority to move the engine, and admits that he was to blame in failing to pay attention to instructions of which he was aware, but he stated that it was a common practice for cleaners to move engines about the shed, and that in this case he gave warning by shouting and sounding the engine whistle. Although I may be inclined to believe the former statement, I cannot accept the latter as no one heard the warning, although two lads were standing a few yards distant from the engine.

Cleaner Butler had only been in the service about two weeks and had never been warned against the dangerous practice of passing between the buffers of engines standing in close proximity.

I consider it advisable when lads are employed in such a capacity for special warning to be given them against dangers of this description, and also that the strictest supervision should be exercised to see that the instructions in regard to the movement of engines in steam sheds are strictly adhered to.

I have, &amp;c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN AND GREAT EASTERN JOINT RAILWAYS.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

25th November, 1901.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 31st, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 17th October to guard Benjamin West at Walkeringham on the Great Northern and Great Eastern Joint Railways.

In this case, during shunting operations at Walkeringham it was necessary to "pick up" a truck which was standing in No. 2 siding so that it might be attached to a goods train which was standing on the down main line. For this purpose the engine with two trucks was backed into the siding, and after West had effected the coupling he shouted out "Right on train," and placing his coupling-pole across the buffer and draw-bar hook he raised himself on his elbows with the intention of riding in this manner behind the waggon. In the meantime the points had been closed for the main line and set for a short safety spur, ending in a stop block.

Driver Kirk being unable to see the disc signal controlling the points from his side of the engine accepted his fireman's statement of "Right out" as an assurance that the road was properly set and the signal "Off" for the outlet to the main line. The fireman, however, mistook the cross-over road disc signal, which he states was showing clear, for the one applying to No. 2 road, with the result that the engine ran into the dead-end, and colliding with the stop-block West was thrown from his position, and the waggons rebounding he was run over and sustained injury which subsequently proved fatal.

There was no necessity for West to take up such a position, which in any case is attended with great danger, therefore the primary cause of the accident was due to want of caution on the part of the deceased.

Driver Kirk should have satisfied himself that the outlet disc signal was showing clear before starting the engine, and his failure to do so was contributory to the accident. It is, however, difficult for a driver to obtain a good view of this signal when standing in No. 2 siding, and I think that the disc might with advantage be placed in a better position.

In view of this unfortunate accident, I consider the joint Companies should again draw the special attention of guards, shunters, and others to the danger of riding on the buffers or outside waggons during shunting operations, and should strictly prohibit such a practice.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### GREAT SOUTHERN AND WESTERN RAILWAY (IRELAND).

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

17th February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 30th, I have held an inquiry into the circumstances attending the accident which occurred on November 27th at Aughervilla Level Crossing, near Claremorris, on the Great Southern and Western Railway (Ireland), whereby gatekeeper Burris Ormsby was injured.

The gates at this crossing are not protected by fixed signals, and Ormsby, who had been in charge of the crossing for six years, had always made a practice of leaving the gates across the railway after the last train had passed each night, although he was aware that such a practice was contrary to Rule 118 of the R.C.H. Rule Book. Ormsby's house adjoins the crossing, and at about 7.20 a.m. he became aware of the approach of a train from Claremorris. He ran out and opened one of the gates, but he had not time to open the other one, part of which was carried away by the engine. The top and bottom bars, however, were swung sharply towards the roadway where Ormsby was standing. He was knocked down and sustained injuries to his head and ribs. Driver Michael Ward was in charge of the train, which was a booked special of empty cattle waggons from Tuam to Kiltimagh. Ward had a clear view of the gates for about 400 yards, the gradient being 1 in 70 falling towards the crossing. The train was running two hours before the booked time, and Ward was aware that the gatekeepers had not been advised of the fact. Under those circumstances he should have been especially careful to keep his train well in hand and be in a position to stop at any of the gates. That he failed to do so is evident from the fact that his engine travelled about 180 yards after striking the gate, and he must therefore be held responsible for the accident.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### GREAT SOUTHERN AND WESTERN RAILWAY (IRELAND).

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

17th February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of January 31st, I have held an inquiry into the circumstances attending the accident which occurred on December 20th at Limerick Junction, on the Great Southern and Western Railway (Ireland), whereby driver James Soye was injured.

Soye was driver of the 9.30 p.m. goods train from Limerick to Dublin. His engine was a six-wheels-coupled tender engine, the steam chest lubricator being fitted on the right-hand side of the smoke-box.

When the train started to leave Limerick Junction about 11.15 p.m. Soye went out on to the framing with a hand lamp and oil-feeder, in order to attend to the lubricator.

He removed the cap from the lubricator and stepped back slightly while the water which had collected inside was escaping. The weather was frosty and he slipped off the buffer-plank, falling in front of the engine. He caught the ash-pan with his left hand, and was dragged forward, until the engine was stopped by his fireman, who had noticed his absence from the framing. Some of Soye's ribs were broken and his back was bruised.

It was stated by Soye that steam is apt to condense in these lubricators if the engines stand for any length of time in cold weather, and that he had consequently made a practice on cold nights of attending to the lubricator immediately after the engine had been started. There is no doubt that the practice is a dangerous one, but I am afraid that it is by no means uncommon. The Company are now fitting sight-feed lubricators on the footplates of all new engines, and it is to be hoped that they will take steps as soon as possible to remove the necessity for men to go out on to the framing of engines in motion, and issue instructions forbidding such a dangerous practice.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
9th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of November 29th, I have held an inquiry into the circumstances attending the accident which occurred on November 5th, near Withington, on the Great Western Railway, whereby packer Zachariah Harris was fatally injured.

On commencing duty at Withington Station about 6 a.m. Harris was instructed by his ganger, Alfred Matthews, to walk to the west end of the length and back to tighten up the keys where necessary and also to replace several fishplate bolts which were loose, and one on the down line which was broken. The length terminates about a quarter of a mile from the station. Harris had finished the up road and while returning on the down road, reached the spot where the bolt was broken about 7.18 a.m. A goods train was then passing on the up line, and Harris apparently stood in the four-foot of the down line. Owing to the fog, which appears to have been very dense on the west side of Withington Station, he failed to notice the approach of a down goods train, the engine of which caught him. His body was found about 70 yards further west. The accident must be attributed to the fact of the unfortunate man having neglected to carry out Rule 273A, in accordance with which rule he should have stood clear of both roads while the up train was passing.

At the same time I am of opinion that, having regard to the foggy state of the weather, ganger Matthews should not have instructed Harris to do any work other than that which was necessary for the immediate safety of trains passing over the line. The replacing of the loose bolts cannot be brought into this category, as it was admitted by Matthews that such work is only done about once a month. There is no doubt that the fog was more dense on the west side than on the east side of the station, where Matthews gave his instructions to Harris, but Matthews was well aware from previous experience that such was usually the case.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
9th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of November 29th, I have held an inquiry into the circumstances attending the accident which occurred on November 13th at Slough, on the Great Western Railway, whereby Assistant Shunter Harry Faisey was injured.



About 8.0 p.m. an up goods train was standing on the up relief line which runs alongside No. 3 platform. Next to this line is the "middle road," and beyond that is No. 2 down platform line. There is a lead from the up relief line to the middle road at the East end of the platform, and one from the down line to the middle road at the West end. In accordance with instructions given by Faisey, the engine and part of the goods train had gone ahead over the points in order to pick up some waggons standing on the middle road, but before the points were altered it was discovered that the waggons were not intended for that train, but for a down train which was standing in the yard. Faisey accordingly gave instructions for the up train to be coupled up again, and apparently started to walk to the opposite end of the waggons in the middle road. Before he reached the waggons he was struck by the engine of the 7.12 p.m. passenger train from Paddington to Windsor, which was travelling on No. 2 platform line, and which stopped at Slough. His left shoulder was bruised and there was a wound in his left thigh probably caused by the hook of his shunting pole.

Faisey could have had a clear view of the approach of the passenger train for a quarter of a mile, and the accident must be attributed to his own want of caution.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,

1, Whitehall, London, S.W.,

10th February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of January 24th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 27th December to J. Holton at Maidenhead on the Great Western Railway.

About 3.45 p.m. Holton and two other men employed by the Maidenhead Corporation were unloading granite from a truck standing in a siding used for unloading purposes, and while so engaged a train of waggons was shunted into the siding and colliding with the standing waggon, Bolton was thrown from the waggon into the four-foot way and run over with fatal results. Shunter Somers who was in charge of the shunting operations asserts that he shouted to warn the men from a distance of about 60 yards, and seeing the horse and cart moved away from the waggon, concluded that sufficient warning had been received.

The men however state that they had no warning of any description, and although Somers statement may be correct he did not comply with the special instructions contained in the Company's Appendix and walk the whole length of the waggons and personally caution each individual before giving a signal for the waggons to be moved, and for this omission he is to blame.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,

1, Whitehall, London, S.W.,

19th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of December 6th, I have held an inquiry into the circumstances attending the accident which occurred on November 18th at Newton Heath on the Lancashire and Yorkshire Railway, whereby Cleaner Edward Power was injured.

About 10.25 a.m. Power and a labourer named William Turner were engaged in removing ashes from the lines in the locomotive shed yard to the ashpit by means of a

wheelbarrow. Turner had loaded the barrow and Power was wheeling it down the six-foot way between No. 13 shed road and No. 2 siding which was full of waggons. These roads converge and the last waggon was standing close to the point of convergence. Just as Power was approaching this waggon, a tank engine came down No. 13 road and struck the barrow. Power was knocked down and his left leg was broken. Owing to a curve in the line and the position of the waggon Power could not see the engine approaching and the driver was also unable to see Power. Turner was standing about 20 yards away and shouted to warn Power, but without effect.

Power was still in hospital at the time of my inquiry and I was unable to obtain his evidence, but I consider that the accident may be attributed to misadventure.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

3rd January, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of December 6th, I have held an inquiry into the circumstances attending the accident which occurred on Sunday, November 24th, at the Leeds engine shed, on the Lancashire and Yorkshire Railway, whereby Cleaner Ernest Varley was injured.

Varley was acting as assistant to Coalman Walter Chadwick, who was acting as shedman. About 10.0 a.m. Chadwick, who was in charge of a six-wheels-coupled goods engine, wished to attach it to a "dead" engine standing on No. 1 road in the shed. Varley accordingly stood astride of the pit in No. 1 road, holding the coupling of the "dead" engine in his hand. As Chadwick's engine came against the "dead" engine, Varley slipped, and tried to save himself from falling by catching hold of the buffer plunger. The buffers, however, were being closed up, and Varley's hand was crushed between the buffer head and the casting.

The mishap was mainly of an accidental nature, but Varley would have acted more wisely if he had not attempted to couple up-until Chadwick's engine had come to a stand, instead of placing himself in such an insecure position while the engine was approaching.

I have, etc.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LONDON AND NORTH WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

3rd February, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of January 15th the result of my inquiry into the circumstances attending the accident which occurred on the 13th December to Porter O. McAdam at Canada Dock Goods Station, on the London and North Western Railway.

In this case four refrigerator cars were being drawn by three horses, and McAdam, when attempting to detach the horse chain from the draw-bar hook of the leading truck, as the horses were turned out of the four-foot way, was unable to do so owing to the tautness of the chain, and as the trucks moved forward McAdam was caught between the horse chain and the end of the car and crushed.

The mishap appears to have been of an accidental nature. At the same time the system of attaching horse chains to the draw-bar hooks of waggons is attended with more

danger than when the chains are attached to the side loops fixed on the sole-bars. However, in this case I find that it is not feasible to adopt the latter course as the cars have to pass over dock lines where the clearance is insufficient to allow the horses to walk clear of the four-foot way, but to reduce the danger the brakemen who act as uncouplers should bring the cars nearly to rest before attempting to detach the horse chains.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

## LONDON AND NORTH WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

29th January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of January 15th, I have held an inquiry into the circumstances attending the accident which occurred on December 16th at Ravensthorpe, on the London and North Western Railway, whereby Goods Porter Arthur Robinson was injured.

Robinson had been instructed by his foreman, John Hawksworth, to fasten the sheet strings of a waggon loaded with goods for Leeds which was standing in No. 9 road in the goods yard. About 7.30 p.m. while Robinson was standing at the end of this waggon, Hawksworth, who was engaged in marshalling an up goods train, allowed another waggon to run into No. 9 road, with the result that the Leeds waggon was struck by it, and Robinson was knocked down in the four-foot way. His left foot was injured, apparently by the flange of one of the wheels. No warning was given to Robinson that the shunt was about to be made, and Foreman Hawksworth must be held responsible for his neglect in this respect.

The sheet strings ought to have been fastened before the Leeds waggon was placed in No. 9 road, and instructions have now been issued that all such work is to be done before the waggons leave the immediate vicinity of the warehouse.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

## LONDON, BRIGHTON, AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

13th January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of January 2nd, the result of my inquiry into the circumstances attending the accident which occurred on the 19th November to carriage cleaner John Higgins at New Cross on the London, Brighton, and South Coast Railway.

In this case Higgins and another carriage cleaner named Thrasher were walking along the six-foot way, between the "Down" arrival platform line and No. 2 "Up" road, with the intention of going to clean some carriages standing in a storage siding a short distance beyond the station. As a train of empty coaches running on the "Up" line was passing them a passenger train approached on the "Down" line, and Thrasher, taking fright, jumped on the footboard of one of the carriages of the empty train, and, in doing so, struck Higgins, who fell against the leading brake van of the passenger train and sustained injuries which with subsequent complications proved fatal.

The accident was due to fright on the part of Thrasher, who has since been dismissed the service for other reasons, and the necessity for the men having to take such a dangerous path for such a purpose amongst passing trains.

Under existing conditions there appears to be no better route than the one at present used, but to lessen the danger the representatives of the Company who attended my

inquiry agreed to make arrangement so that in future it will not be necessary for carriage cleaners to walk along this path during the passage of trains or while shunting operations are being carried on.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON, BRIGHTON, AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

23rd January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of January 16th, I have held an inquiry into the circumstances attending the accident which occurred at Newhaven Harbour on the London, Brighton, and South Coast Railway on December 31st, whereby labourers John Calvo and James Winyard were injured.

Calvo and Winyard were attached to the breakdown gang which arrived from Brighton about 8.0 a.m. in order to re-rail some waggons which had been in collision about 5.0 a.m. A goods brake, an Aldershot Gas and Water Company's waggon, and a London, Brighton, and South Coast waggon, which were on the "Gully" road were buffer-locked, and a South-Eastern Company's waggon loaded with cement, which had originally been travelling on the "Chalk" road, was standing on the ballast parallel to the "Gully" road. This waggon was just opposite the Aldershot waggon, and there was a space of about 2 feet 6 inches between them. In order to release the buffers of the London, Brighton, and South Coast waggon, the Aldershot waggon was raised at one end by means of a jack which rested on the ground between the Aldershot waggon and the South-Eastern waggon. After the buffers had been released, the jack was left in the same position, and the waggon appeared, in the opinion of the locomotive foreman in charge of the work, to be quite secure. Calvo and Winyard, who were standing between the Aldershot waggon and the South-Eastern waggon, were called to assist in pushing the London, Brighton, and South Coast waggon down the road. Before they were clear, however, the Aldershot waggon tilted over against the South-Eastern waggon, and both men were injured. Calvo's right wrist was fractured, and Winyard sustained abdominal injuries.

No action apparently was taken by any of the men engaged in the work which would account for the sudden movement of the Aldershot waggon, and I am of opinion that the mishap may be regarded as one of an accidental nature.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

12th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of October 26th, the result of my enquiry into the circumstances attending the fatal accident which occurred on the 3rd October to John Wilmot at Derby, on the Midland Railway.

In this case, when Wilmot was working with three other men shovel-packing some sleepers on the down goods line at the north end of Derby station, a light engine, which had been standing at the down home signal about 80 yards from the place where the accident occurred, was brought forward by driver Grattidge. Two of the men jumped clear, but Wilmot and Stevens who were working together were struck by the engine, and Wilmot was run over and fatally injured.

The accident appears to have been due to an indifferent look-out on the part of driver Grattidge when starting the engine, and to the failure to provide protection by appointing a look-out man for the men who were working in such a busy place, by assistant-ganger Brough who was in charge of the work.

I find that the Company have no instruction other than Rule 273 F for the protection of platelayers, and as this rule leaves it entirely to the discretion of the man in charge of the work to provide a look-out man when necessary, I consider that a more definite instruction is required to the effect that when two or more men are working together on the permanent way, or oiling or cleaning points in busy yards, one of them must in all cases act as look-out as a precaution against accidents similar to the one under enquiry.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with their Order of November 18th I have held an enquiry into the circumstances attending the accident which occurred on October 23rd, at Hunslet Lane Leeds, on the Midland Railway, whereby Harry Foster Ward, a trimmer employed in the electrical department was injured.

About 1.15 p.m. Ward was standing on a ladder while attending to an arc lamp fixed on the wall of the Old Warehouse. It was necessary for the foot of his ladder to stand in the "four-foot" way of the cattle dock road, but before placing it there he had received permission from the foreman shunter to do so. The cattle dock road was nearly full of waggons, the end waggon being about three yards from the ladder. The pilot engine belonging to the Leeds Corporation Gasworks was engaged in shunting at the far end of the cattle dock road, and, without giving any warning to the railway staff, the Corporation shunter, Cornelius Brown, instructed the driver to push the waggons in the road down a short distance. Another trimmer, who was standing at the foot of the ladder, shouted to Ward, but the ladder was struck by the waggons, and Ward injured his ankle in jumping to the ground. It has always been a recognised practice for the Corporation staff to obtain permission from the railway staff before performing any shunting operations which might foul the cattle dock road at the "warehouse" end, and the responsibility for this accident, which might have been attended with more serious results, rests with the Corporation shunter, Cornelius Brown.

Since the accident written instructions as to the method of working have been issued to all concerned, and arrangements have also been made for the lamp in question to be cleaned at a time when the Corporation pilot engine is not working. These precautions should effectually prevent the occurrence of similar accidents in future.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

29th November, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of November 18th, I have held an inquiry into the circumstances attending the accident which occurred at Bradford, on the Midland Railway, on October 24th, whereby number-taker Roger Fenwick was injured.

Fenwick was on duty in the goods yard about 3 p.m. when a train of empty ballast waggons arrived on the up main line from Manningham. He got on to the step of the

brake van and spoke to the flagman, who told him that he need not take the numbers of the waggons. As the train was setting back into No. 4 coal siding the guard who was on the ground told Fenwick to get off the brake, but Fenwick took no notice of the warning and remained on the step. Some loaded coal waggons were standing in No. 3 coal siding, and although Fenwick noticed that the foremost one was very close to No. 4 siding he considered that he was in a safe position and made no attempt to get off the step. He was, however, knocked off the brake by coming into contact with the coal waggon and slightly injured.

There was no need for Fenwick to ride on the brake at all, and he must take the responsibility for the accident.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
9th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of November 18th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 1st November to goods porter F. Meggitt, at Wicker goods sheds, on the Midland Railway.

In this case Meggitt was assisting to sheet a waggon on No. 8 road in the goods shed, and when he was standing on the end of the waggon it was moved, through some others being shunted against it, and Meggitt, losing his balance, fell to the ground and was run over, with fatal results.

The waggon on which Meggitt was standing had to form part of a goods train which was being made up on No. 8 road, and a few feet in front on the same road within the shed were three other waggons, to which the single one had to be coupled. Foreman shunter Arnold, who was making up the train, had brought the engine into No. 8 road and attached 14 waggons which were standing outside the shed. Before bringing the train inside he gave the driver a red light, and it was brought to a stand. Arnold states that his reason for doing this was to give warning to the men working at the waggons, but before he had an opportunity of doing so a green light was shown, waved slowly from side to side near the waggons, and the driver rightly accepting this as a signal to come back, did so, and the train coming in contact with the three waggons moved them forward against the one at which Meggitt was engaged, with the result as stated.

Guard Jaggard, who was to work with the train, and foreman shunter Arnold, were the only men who had lamps fitted with green shades near the place from which the signal was given. They both deny having shown a green light, but Arnold admits that he saw the signal given, therefore the driver is free from blame.

Failing corroborative evidence I am unable to come to a decision as to which man gave the signal, but I am satisfied that carelessness was displayed by both Arnold and Jaggard in not having a proper understanding as to who should give the necessary warning to the men, and who should signal to the driver before commencing the work.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
19th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of December 6th, I have held an enquiry into the circumstances attending the accident which occurred on November 14th at St. Mary's goods yard, Derby, on the Midland Railway, whereby porter John Allsopp Smith was injured.

Smith was acting as number-taker, and at about 11 p.m. was instructed by his mate to take the waggon numbers of a train standing in the north siding about 400 yards distant.

A goods train was going in that direction and Smith jumped on to the step of the brake van as it passed. When approaching St. Mary's Junction he realised that the train was gaining speed and jumped off. He fell against the near rail of a crossover road injuring his back. I consider that the accident was entirely due to Smith's own want of caution.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
19th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of December 4th, I have held an inquiry into the circumstances attending the accident which occurred on November 18th, at St. Mary's goods yard, Derby, on the Midland Railway, whereby supernumerary porter Edward Gibson was injured.

About 10.15 a.m. Gibson was engaged in resheeting a waggon of potatoes which had been partly unloaded and which was standing in Number 8 "potato" road. This waggon was standing near to the buffer stops, and there was another waggon in the same road about three waggon lengths away. A similar distance beyond that was the brake van of a goods train which was being made up by shunter Harry White. In order to clear the points of No. 9 road, White instructed the driver to push the train down a little and the brake van came into contact with the single waggon, which ran down the siding, and struck Gibson in the back while he was leaning over the buffer of the waggon which he was sheeting.

No warning was given to Gibson of the approach of the waggon as White was under the impression that the brake van would not touch it, and the accident must be attributed to White's want of judgment in this respect.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND AND GREAT NORTHERN JOINT RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
14th January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of January 2nd, the result of my inquiry into the circumstances attending the accident which occurred on the 11th December to goods porter Thomas Peatman, at Moulton, on the Midland and Great Northern Joint Railway.

In this case, Peatman was tow-roping seven waggons out of the shunting spur when the rope broke, and a portion striking his foot he was slightly injured.

The accident appears to have been due to the defective condition of the rope, as it was attached to the waggons in a proper manner and was not subjected to any undue strain. The rope had been in use (so far as I could learn) about three years, and no doubt the fibre was perished through exposure. It is by no means a regular practice to tow-rope waggons at this station, but occasions arise at certain periods of the year, owing to the nature of the traffic, when the sidings and cross-over roads are blocked with waggons, and to save delay this method of performing the work is adopted.

Tow-roping is attended with considerable risk, and I consider the Company might discontinue the use of such an appliance at this station by arranging to clear the sidings more frequently, or by altering the timing of their goods train so that the crossing loop might be used for the purpose of running the engines round the waggons should the cross-over roads in the yard be blocked.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND AND SOUTH WESTERN JUNCTION RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
22nd January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of January 7th, the result of my inquiry into the circumstances attending the accident which occurred on the 5th December to Henry and George Bates, at Foss Cross, on the Midland and South Western Junction Railway.

In this case, while the above-mentioned men were engaged loading hay on to a truck standing in the goods shed road, two other waggons were shunted into the same siding, without warning, and, striking the stationary waggon, both Henry and George Bates were thrown to the ground and somewhat injured.

The two waggons were detached from a contractors' train by Richard Marchant who is in the employ of Messrs. Firbank and Co., but I cannot hold him responsible for failing to give due warning, as the working of the train was under the control of shunter William Guest who was acting as pilotman. Guest was aware of what was going to be done, and, also, that men were at work on a waggon standing in the goods shed road, and therefore he is to blame for failing to see that the men were warned in accordance with Rule 112A, before the waggons were shunted into the siding.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
16th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of November 22nd, the result of my enquiry into the circumstances attending the accident which occurred on the 25th October to fireman James Anderson, at Grangemouth, on the North British Railway.

In this case, Anderson, during shunting operations, was stepping from a waggon which is used as a coal tender and is loose coupled to the engine. When the driver applied the brake, and as the waggon "buffered" up, Anderson's foot was caught between a plank placed across the buffers and the engine framing and slightly crushed.

Anderson had been on the waggon tender for the purpose of trimming the coal forward within reach of the footplate. As there were many intervals when this work could have been done with considerably less danger while the engine was at rest, I consider Anderson is to blame for unnecessarily placing himself in a dangerous position, and also driver Galloway for permitting him to do so.

It appears to be a common practice, however, to act in this manner, and to prevent accidents of a similar nature in future, the Company might issue a notice that the coal on these tender waggons must only be trimmed when the engines are at rest, and men must not pass to and from the tender waggons while the engines are in motion.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.



## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
16th December, 1901.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of November 21st, I have held an enquiry into the circumstances attending the accident which occurred on the 8th November to Fireman J. Harold, at Leuchars, on the North British Railway.

In this case, Harold was working as fireman with a goods train which had been brought to a stand at Leuchars Junction Station prior to being shunted into the sidings to clear the main line. While the engine was at rest, Harold decided to trim the head lamps, and informed driver Campbell of his intention. Campbell, however, warned him against doing so, stating that it would be better to wait until the train was shunted into the sidings, but Harold paid no attention and went to the front of the engine where he commenced to clean one of the lamps.

After the train had started, and when he was kneeling down, he missed the framing and fell from the engine and was run over sustaining severe injuries.

Harold is to blame for disregarding his driver's warning, but at the same time I consider Campbell should have satisfied himself that his fireman was on the footplate before starting the engine.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

SIR,

13th January, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with your Order of January 3rd, I have held an enquiry into the circumstances attending the accident which occurred at about 8.0 a.m. on November 30th at Bearsden on the North British Railway, whereby fireman James McBeath was injured.

McBeath was fireman on a 4-wheels-coupled tank engine with trailing bogie, which had been repaired at Cowlairst Works, and was being run out on a trial trip. From Cowlairst to Bearsden, the engine, which was running bunker first, was attached in front of a goods train, but as the goods train had to do some work at Bearsden, it was expected that this engine would be detached at that station. When passing the signal box, which is about 200 yards from the station, McBeath, without the knowledge of his driver, left the footplate in order to put on a lamp to act as a tail lamp after his engine had been detached. The gangway at the side of the tank on this class of engine is only about three inches wide, and McBeath while passing alongside the tank, fell from the engine to the ground, bruising his left shoulder.

A circular is issued by the Locomotive Superintendent to all drivers and firemen, requesting them to avoid as far as possible going out on to the framing of engines, when running, for the purpose of oiling the machinery, &c. McBeath was well aware of this circular, and admits that there was no need for him to go outside the engine while in motion. I am afraid, however, the compliance with the circular is not at all rigidly enforced by the responsible officials, and I would suggest that in order to prevent further accidents of a similar nature a much more emphatic prohibitory instruction should be issued and strictly enforced.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

13th January, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of January 3rd, I have held an inquiry into the circumstances attending the accident which occurred on December 3rd near Parkhead, on the North British Railway, whereby guard James Stewart was injured.

Stewart was acting as second guard on the 3.30 p.m. goods train from Hamilton to Balloch. About 8 p.m. the train was standing behind another train in the Parkhead Loop, and Stewart walked to the engine to speak to the driver. While Stewart was on the foot-plate, the train in front was drawn ahead about 200 yards, and Stewart's train followed it, with the result that the engine came to a stand on the Coach Road Bridge. The night was very dark and neither Stewart nor the driver were aware of the exact position of the engine. Stewart left the engine in order to take some necessary information to the yardsmen at Parkhead and fell from the bridge into the roadway below, a distance of about 16 feet. His breast bone and two ribs were injured.

The bridge in question is a girder bridge, the girders being about 35 feet in length, and the top flange is about 18 inches in width, and about 18 inches above the level of the ballast. There is only a distance of about 27 inches from the outside edge of the rails to the inside edge of the top flange of the girders. At present there is no protection to prevent men from falling into the roadway below, but the Company have decided to erect efficient railings on both sides of the bridge as soon as possible. It is to be hoped that the work will be done without delay, as it is frequently necessary for guards to leave their brakes when they are standing on the bridge, and there are no fixed lamps in the immediate vicinity.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

20th January, 1902.

I HAVE the honour to report for the information of the Board of Trade, that in accordance with the Order of January 3rd, I have held an inquiry into the circumstances attending the accident which occurred on December 7th at Waverley Station, Edinburgh, on the North British Railway, whereby Porter James McWilliams was injured.

When the 11.15 p.m. sleeping car express from Edinburgh to King's Cross was standing at the up main line platform, it was found that one of the lavatory cisterns was out of order, and McWilliams was instructed to fill two cans with water for use in the lavatory. He accordingly took the cans out of the train on the off side, and commenced to fill them from the hinged stand-pipe which is placed in the six-foot between the up main line and the up loop line. While he was so engaged a light engine travelling on the up loop line, struck him and knocked him down. His head was cut and his right leg bruised.

The driver and fireman of the light engine were unable to see McWilliams owing to the shadow of the passenger train, and McWilliams did not detect the approach of the engine owing to the curvature of the line and the presence of a North Eastern engine, with the Westinghouse pump in action, on the up main line. The water cans and lavatory cisterns are, in the ordinary course of working, filled by the carriage cleaners, and as it is quite an exceptional circumstance for a porter to be called upon to perform this duty, I consider that the mishap may be regarded as mainly of an accidental nature.

The stand-pipe used by McWilliams, however, and also the hose connection close to it, are regularly used by the carriage cleaners, and I am of opinion that the position of these pipes between the running roads is likely to be a source of danger to the men using them.

I suggest that the Company should make arrangements to supply the lavatory cisterns, &c., with water from the platform, or else to perform the work when the coaches are in the carriage sidings.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

SIR,

21st January, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of January 3rd, I have held an enquiry into the circumstances attending the accident which occurred on December 12th in the Mound Tunnel at Waverley Station, Edinburgh, on the North British Railway, whereby Shunter John McMichan was injured.

About 2.20 p.m. McMichan was in charge of a shunt of 5 coaches, which he was taking from the south down main platform to No. 9 Platform. To do this it was necessary for the coaches to be taken into the Mound Tunnel, which lies at the west end of the station, and to be set back over No. 102 points, which are about 3 yards east of the mouth of the tunnel. The central arch of the tunnel contains two lines, *i.e.*, the up south line and the down north line, the five coaches being on the latter. After the coaches had cleared the points, foreman shunter Thomas Bannon, who was standing just outside the tunnel, signalled to the driver of the pilot engine to set back. McMichan was standing on the footboard of the last coach but one, with his back to the engine, and was waving with his right arm to the driver, while leaning away from the coach at the full extent of his left arm. He failed to notice the approach of a suburban passenger train on the up south line, and was struck on the head and between the shoulders by the projecting side window of the front brake.

There was a considerable amount of steam and smoke in the tunnel and the driver and fireman of the passenger train knew nothing of the accident at the time. The driver of the passenger train appears to have sounded his whistle shortly after his engine entered the tunnel, but it was not heard by McMichan. Had it been sounded immediately on entering the tunnel, it is possible that it might have had more effect, and as a considerable amount of carriage shunting is performed in this tunnel, it is most necessary that Rule 153 should be strictly carried out. The accident, however, must be attributed to want of caution on the part of McMichan. Foreman Shunter Bannon was responsible for seeing that the points were properly set, and for signalling (by whistle) to the pilot driver to set back, and there was no need for McMichan to place himself in such a dangerous position. The frequent presence of steam and smoke inside the tunnel renders it especially necessary for men working therein to exercise caution in the interests of their own safety.

I have, &c.  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,

SIR,

4th March, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 15th, the result of my enquiry into the causes of the accident which occurred on the 23rd December to goods porter John Clark, at Leith Walk goods sheds, on the North British Railway.

While Clark was engaged sheeting a waggon standing in No. 2 Road in the goods shed, he placed his right foot on the buffer plunger, and when he was in this position the waggons were closed up, and his foot was crushed between the buffer head and guide.

The responsibility for the accident rests entirely with shunter Wrisberg, who failed to give warning to the men working at the waggons before moving them, according to Rule 112A and Special Instructions contained in the Appendix to the Working Time Tables, with which he was acquainted.

Wrisberg, who has been employed as a shunter for three years, implied in his evidence at the enquiry that it had not been customary to warn the men when performing operations of a similar character to the one in question, and it would therefore appear that he does not sufficiently realise the necessity for paying strict attention to the rule and special instructions quoted above. Moreover, shunter Brown, who was working with Wrisberg, was not aware that such a rule as 112A existed.

This state of affairs, which is very unsatisfactory, should immediately be remedied, and every care taken by those in authority to see that the men conducting shunting operations have a knowledge of, and comply with, the important regulations mentioned.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

6th February, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of January 29th, I have held an inquiry into the circumstances attending the accident which occurred on December 30th, at Grangemouth, on the North British Railway, whereby fireman George Calder was injured.

Calder was fireman on a six-wheels-coupled saddle tank engine, running bunker first. About 7.30 p.m., the engine was drawing a train of loaded coal waggons from Fouldubs Yard to the hoist at Grangemouth Dock. When near the level crossing north of the Bolness Road bridge, the engine began to slip, and finally came to a stand, owing to the rails being wet. The driver, John Russell, instructed Calder to get off the engine and tap the right-hand sand pipe with a hammer, as the sand was not running properly. While Calder was so engaged, Russell opened the regulator, and the engine commenced to slip. Calder's left arm was struck by the side rod, and bruised against the top framing.

I consider that driver Russell must be held responsible for the accident. He should have made sure that Calder was not in a dangerous position before opening the regulator.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### NORTH EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

16th December, 1901.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of December 4th, the result of my enquiry into the circumstances attending the accident which occurred on the 8th November to foreman shunter George Blake, at York, on the North Eastern Railway.

In this case, the engine working a goods train, composed of 48 loaded and two empty waggons, was unable to clear No. 3 independent road, owing to the weight of the load

and the greasy state of the rails, and Blake, with the intention of assisting the train to get away, obtained a prop nine feet in length, and placed it between the train engine and a shunting engine on the adjoining road. When steam was applied, the prop, which would be at a dangerously wide angle owing to the space between the roads being seven feet, broke, and in breaking one of the parts struck Blake's arm and injured the muscles.

I am surprised that Blake, who has service of over 21 years, should have attempted to use a 9 foot prop for such a purpose between two roads 7 feet apart, and I consider the accident was entirely due to his own carelessness, especially as he could have taken the safer course of attaching the assisting engine in front of the train without any difficulty, although it might have caused a slight delay.

I find that it is by no means an unusual practice to prop trains in a similar manner (although no doubt with longer poles) out of these sidings, and that it is practically agreed to by the officials in charge of the working.

Propping in any case is a dangerous operation, and as at this place it is quite unnecessary, I consider it should be strictly forbidden.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
3rd February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of January 2nd, the result of my inquiry into the circumstances attending the accident which occurred on the 10th December to platelayer T. Ruston at Dairycoates Junction, on the North Eastern Railway.

About 9 a.m. a platelayer's lorry, which had been placed on the down independent line by direction of assistant-ganger Thurling, was brought to rest behind an engine which was standing on the same line waiting to obtain the outlet signal for passage on the down goods line. After the signal had been pulled off the engine was run ahead a short distance to clear a cross-over road between the down and up goods lines. When the cross-over road had been set, and a hand signal received from the signalman, the engine was brought back to enter the loco sidings across the down line. At the point of crossing, however, the engine struck the lorry which had been run out of the independent line and was foul of the down line, and Ruston, one of the platelayers propelling the lorry, was severely bruised. Thurling, who was in charge of the lorry, mistook the hand signal given by the signalman to the driver, as applicable to the lorry, and accordingly fouled the crossing. He had no right to assume that such was the case, as he had failed to advise the signalman in accordance with Rule 247, therefore he must be held responsible for the accident.

The fact of such a mishap occurring in broad daylight displays a certain amount of carelessness in not keeping a proper look-out by all the men concerned.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

20th March, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 15th, I have held an inquiry into the circumstances attending the accident which occurred on December 18th at York, on the North Eastern Railway, whereby Driver James Suthering was injured.

About 12.30 p.m., Suthering; who had previously worked a goods train from Heaton to York up yard, was taking about 40 waggons from the latter yard to what is known as the "North Side." After disposing of the waggons he would have taken his engine to the shed. He noticed that the signal was against him, and while his engine was slowly approaching it, he went out on to the framing in order to remove the wicks from the motion oil cups and thus prevent any waste of oil. He took his oil feeder with him in case he might require it. When he had lifted the flap plate in front of the smoke box, his oil feeder fell underneath it. He secured the feeder with his left hand but it was caught by the tail rod of the piston and the back of his hand was drawn against the sharp edge of the flap plate, the skin being torn off. There was no real necessity for Suthering to attend to the oil cups while the engine was in motion, but he had frequently done so before, and did not consider that he was infringing any regulation by so doing.

So many accidents occur from enginemmen leaving their foot-plates while their engines are in motion that I am of opinion that the Company should issue instructions definitely forbidding the practice.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

30th December, 1901

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your order of December 10th, the result of my enquiry into the circumstances attending the accident which occurred on the 21st November to driver William Harrod at Hastings, on the South-Eastern and Chatham Railway.

In this case Harrod worked a passenger train from Charing Cross to Hastings, and on arrival at the latter station at 10.55 p.m., he left his engine for a necessary purpose. During Harrod's absence, the train was shunted back on the down line by fireman Sinden, who, after the engine had been uncoupled and run round the train, proceeded to propel the carriages into the sidings.

Harrod had, in the meantime, returned to resume work, and walked down the sidings to get on his engine, and while standing on some trunking opposite the signal cabin between the up and down lines, he was struck by a London, Brighton, and South Coast Company's light engine which was running on the up line, and was thrown against his own engine and injured.

A large gas lamp was alight some 18 feet distant, but the light was temporarily obscured by the passing coaches, and Harrod failed to notice the approach of the engine.

The mishap appears to have been accidental.

Fireman Sinden (although a passed driver) was to blame for moving the engine during his driver's absence, and it would have been better had Harrod informed someone in authority before leaving his work.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

14th January, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of January 2nd, the result of my inquiry into the circumstances attending the accident, which occurred on the 2nd December, to permanent way labourer Frederick Lilley at Ashford on the South Eastern and Chatham Railway.

In this case Lilley, with some other labourers, was unloading spoil from a ballast train standing in No. 6 goods siding, when a "box" waggon was shunted into the siding, and colliding with the train moved the waggons, and Lilley was thrown to the ground and somewhat injured.

No warning had been given to the men working on the ballast train by either shunter Johnson or switchman Shilling, who were responsible for the shunt. As both these men were aware of the work which was being performed they are to blame for failing to give warning as directed in Rule 112A.

It is customary for the guard of the ballast train to act as look-out man when work of this description is being performed, and it is to be regretted that he was not in this position at the time, having been sent home before the work of unloading was completed, as otherwise the accident might have been prevented.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## APPENDIX C.

## REPORTS OF SUB-INSPECTORS A. FORD AND J. J. HORNBY ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN...	<p>Date of Accident—12th October, 1901. Place at which Accident happened—Ross South Marshalling Sidings. Name of Person killed—John Currie. Age of Person killed—14. Capacity in which employed—Greaser boy. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours.</p> <p>Description of Accident—At Ross South the waggons are placed in the arrival sidings, from which they are run by gravitation into other sidings for marshalling purposes. Currie worked under the instructions of a waggon examiner named David Hughes. It was his duty to grease the axles of waggons in the different arrival sidings. At about 3.45 a.m. Currie and Hughes stopped work for the purpose of taking food, and the examiner left the deceased standing by a fire which, for the comfort of the men, is placed on the off side and clear of the shunting neck. He was last seen alive and in the position mentioned by the yardman or foreman shunter, George Clark, but about two minutes afterwards, as Clark was lowering some waggons past the same spot, he found Currie's body lying across the outside rail.</p>	<p>At the point in question there are many extra large hand scootches necessarily kept lying in the path, and I am inclined to think that Currie may wrongly have been trying to place one of these in front of one of the moving waggons, and whilst doing so he fell forward under the wheels, but as there is no direct evidence as to this I regret that I am unable to arrive at a satisfactory conclusion as to the cause of this accident.</p> <p>The yard is well lighted by electricity.</p> <p>A. F.</p>	
	<p>Date of Accident—16th October, 1901. Place at which Accident happened—Motherwell. Name of Person killed—William John McCully. Age of Person killed—31. Capacity in which employed—Brakesman. Number of booked working hours per diem—11½. How long on duty at time of Accident—11 hours. Nature of injury—Both legs run over, from the effects of which he died about five hours afterwards.</p> <p>Description of Accident—On the date in question the deceased worked with mineral trains between Motherwell and Glasgow. When about finishing duty at the former station, and while his brake van was being propelled into the "van lye" or siding, he got upon the step of the brake van for the purpose of uncoupling it from the engine, and after doing so his body came into contact with a waggon standing in No. 2 lye (the adjoining siding), causing him to be thrown down on to the rail in front of the leading wheel of the engine, with the result stated above.</p>	<p>The spot where this accident happened is several yards north of what is supposed to be the fouling point between the "van lye" and "No. 2 lye," yet the space there was only 4 feet 3 inches. If the deceased had got upon his van step at the opposite side he might have come in contact with the corner of the wall in connection with the coal store, which is only 3 feet 8 inches from the running line of the "van lye."</p> <p>The mishap was chiefly due to the space between the "van lye" and "No. 2 lye" being insufficient.</p>	<p>I was informed by the Company's officers that extensive alterations are about to be made at and about the spot where this mishap occurred, and it is to be hoped that sufficient space will be given between the sidings to enable the men to perform their duties without having to incur such risks as at present.</p> <p>Until the alterations are made, instructions should be issued to all concerned that they must not attempt to uncouple their brake vans in such a manner till they have been brought to rest.</p>
	<p>Date of Accident—19th October, 1901. Place at which Accident happened—Dundee. Name of Person injured—Thomas Kerr. Age of Person injured—35. Capacity in which employed—Engine Driver. Number of booked working hours per diem—12. How long on duty at time</p>	<p>In this case Kerr fully admits that he is to blame, as he could and should have completed oiling his engine before leaving the engine shed.</p> <p>J. J. H.</p>	<p>J. J. H.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GALENDONIAN— <i>cont.</i>	<p>of Accident—50 minutes. Nature of Injury—Right hand crushed. Still off duty at the time of Inquiry.</p> <p>Description of Accident — Kerr booked on duty at 3.35 p.m. to work with the 4.15 p.m. up mineral train from Dundee to Greenock. At about 4.10 p.m. he took his engine from the engine shed against the train, and whilst it was at rest he left the footplate and knelt on the outside framing for the purpose of oiling the motions. While doing so his brakeman, H. Bone, gave him the starting signal, and he instructed his fireman, A. Todd, to start. After the engine had travelled about 30 yards, and when he was engaged oiling the spindle guides, his right hand was crushed between the piston rod cotter and motion plate, with the result stated above.</p> <p>Date of Accident—31st October, 1901. Place at which Accident happened — Granton Road. Name of Person injured — Alexander Lightbody. Age of Person injured—52. Capacity in which employed—Engine Driver. Number of booked working hours per diem—11½. How long on duty at time of Accident — 2½ hours. Nature of Injury—Right leg and arm slightly bruised. Off duty ½ day.</p> <p>Description of Accident—Lightbody was working with the 6.40 a.m. passenger train from Edinboro' to Leith, and when approaching Granton Road he left the footplate of his engine for the purpose of oiling the cylinders. After doing so, and when returning to the footplate, he lost his hold of the handrail and fell to the ground, with the result stated above.</p> <p>Date of Accident—22nd November, 1901. Place at which Accident happened—Muirhouse, near Pollockshields. Name of Person injured—Robert Charteris. Age of Person injured—20. Capacity in which employed—Assistant Brakeman. Number of booked working hours per diem—12. How long on duty at time of Accident—2½ hours. Nature of Injury—Left foot injured. Still off duty when inquiry was held.</p> <p>Description of Accident—Charteris was working with the Polmadie and Muirhouse pilot engine, and during shunting operations at Muirhouse Gas Works, while the engine was propelling some wagons into the gas works siding, he got upon the buffer of the fourth waggon from the engine for signalling purposes, and when the vehicles were joined together he allowed his left foot to slip off the buffer on to the buffer spindle, with the result that when the buffers were closed up his left foot was crushed between the buffer head and socket and injured, as stated above.</p>	<p>The instructions on this line respecting enginemmen leaving the footplates of their engines in motion do not appear to be definite enough, and from the evidence given it is clear that Lightbody, who is an old and experienced driver, has been in the habit of regularly doing so for the same purpose as he did in this case, leaving his fireman in charge, which is contrary to rules 24(a) and 139.</p> <p>The mishap appears to have been due to misadventure.</p>	<p>For future safety the Company should be asked to issue instructions strictly forbidding their enginemmen to leave the footplates of their engines when in motion, and be informed that some of the other Companies have issued orders to this effect with good results.</p> <p>J. J. H.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN— <i>cont.</i>	<p>Date of Accident—4th December, 1901. Place at which Accident happened—Scotstown West Marshalling Sidings. Name of Person injured—James Hunter. Age of Person injured—18. Capacity in which employed—Goods Checker and Waggon Number Taker. Number of booked working hours per diem—11½. How long on duty at time of Accident—10½ hours. Nature of injury—Compound fracture of right leg.</p> <p>Description of Accident—It was Hunter's duty to check certain goods and to copy the numbers of all waggons delivered to and received from the several different private works sidings connected with the Scotstown tramway, or low level branch line, which is entered from the east end of the Scotstown West Sidings. Unless he is able to copy the numbers before the waggons leave the private sidings, he is supposed to accompany them to the marshalling sidings and do so there before the marshalling is commenced.</p> <p>On the night in question as a train of waggons was being taken from the low level line, it was brought to a stand at a certain point before reaching the sidings to enable the engine to take water, and whilst it was so waiting, thinking it would facilitate the work, Hunter commenced to copy the waggon numbers. After filling the tank the driver took the train slowly forward, and whilst Hunter was walking alongside the moving waggons, and assisted by the light from his hand lamp still engaged in copying the numbers, he stumbled over some ashes which had been thrown from an engine during the night, and his right leg being struck by the axle guard of a passing waggon, was fractured as stated.</p>	<p>In copying the waggon numbers at the point mentioned there is no doubt Hunter was doing what he believed would help on the work, and having his attention fixed thereon and the light of the hand lamp thrown on the waggon labels, he would not be able to see the heap of ashes over which he stumbled.</p> <p>I am of opinion that in this case the accident was due to misadventure.</p>	<p>For the future safety of enginemen, as well as persons who may have to walk past the water crane, I suggest that the Company should consider the advisability of providing a lamp opposite to the water crane referred to.</p> <p>A. F.</p>
	<p>Date of Accident—9th December, 1901. Place at which Accident happened—Buchanan Street Goods Yard. Name of Person killed—John McCabe. Age of Person killed—24. Capacity in which employed—Assistant Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—2½ hours.</p> <p>Description of Accident—At Buchanan Street there are three groups of sidings leading to three parallel shunting necks, respectively. At about 4.45 p.m. McCabe was engaged with shunting engine No. 401 in the middle or No. 2 group. It was necessary for eight empty waggons to be taken from the No. 2 to the No. 3 sidings for the purpose of attaching a brake van. After the last of the eight waggons had been drawn from the No. 2 siding and had cleared the hand points, McCabe gave a stop signal to the engine driver and then at once gave a set-back signal, after which he crossed the shunting neck and reversed the position of the hand points for the No. 3 siding. He then appears to have tried to re-cross the shunting neck, and in doing so he fell across the rail and was run over.</p>	<p>The hand points referred to are fixed between the No. 1 and No. 2 shunting necks, but owing to the latter being on a slight curve it is necessary for hand signalling purposes for the shunters engaged in the No. 2, or middle group, to stand between the No. 2 and No. 3 shunting necks. The space between the two lines last mentioned is only 6 feet 6 inches, which would not allow for the removal of the hand points to that position.</p> <p>There are two shunters provided, but at the time of the mishap the shunter in charge, J. Robertson, was engaged coupling waggons in the No. 3 siding, otherwise it would not have been necessary for McCabe to have crossed the shunting neck for reversing the points and hand signalling.</p> <p>There is no proof as to how the accident occurred, but as there was some snow lying about the sidings</p>	<p>To avoid the necessity for the shunters engaged at the No. 2 group having to cross and re-cross the shunting neck as in this case, I suggest that as far as possible, when an engine is working at that point, both shunters should be with it.</p> <p>A. F.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN—cont.	<p>Date of Accident—17th December, 1901. Place at which Accident happened—Perth North. Name of Person killed—John McKernan. Age of Person killed—15. Capacity in which employed—Waggon Greaser. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours.</p> <p>Description of Accident—McKernan was employed in the Perth North up and down marshalling sidings. On the morning in question, at about 3.15, he was crossing from the waggon inspectors' cabin in the up sidings for the purpose of attending to waggons then being propelled into the No. 1 down siding, and whilst doing so at a point about 80 yards south of the shunting neck, apparently failing to notice an engine and brake van then running through the down loop line, he was knocked down and run over, receiving injuries from which he died the same day.</p>	<p>I think it is probable that McCabe may have slipped from one of the sleepers, and that the accident was due to misadventure. The path is fairly level and the shunting necks are well lighted.</p> <p>The evidence shows that McKernan had previously crossed from the down to the up sidings for the purpose of re-filling his grease box from a cask kept near the waggon inspector's cabin, and it was whilst re-crossing from the up to the down sidings with a heavily loaded grease box that he was knocked down. At the same time, had he kept the necessary lookout he might have seen and avoided the engine and van by which he was run over, and as he failed to do so, the mishap was due to his own want of caution.</p>	<p>To avoid the greasers having to cross the main and loop lines for the purpose of re-filling their boxes, as in this case, I recommend that arrangements should be made for a sufficient supply of grease being kept on the down sidings.</p> <p>A. F.</p>
	<p>Date of Accident—24th December, 1901. Place at which Accident happened—Cove. Name of Person killed—William Grassie. Age of Person killed—68. Capacity in which employed—Goods Porter acting as brakeman. Number of booked working hours per diem—12. How long on duty at time of Accident—5 hours.</p> <p>Description of Accident—William Grassie was working in charge of a conditional goods train from Aberdeen to Portlethen (8½ miles) and back. The train, which consisted of engine, 22 waggons, and a brake van, arrived at Cove at 11.50 a.m., where in addition to the waggon next the engine having to be detached four others had to be attached. As soon as the train had been brought to a stand the station porter James Main uncoupled behind the first waggon and then instructed the engine driver to go ahead over the siding inlet points. The up line is on a gradient of one in 101 falling towards Aberdeen, and Main states that before uncoupling he placed a sprag in one of the wheels of the next waggon, but, whether this is correct or not, as soon as the engine had gone forward he noticed that the train was moving back. Fortunately, after the train had only run a few waggons' lengths, by applying some of the hand brakes on the waggon, he was able to bring it to a stand. After the shunting had been completed at about 12.15, the train was drawn forward until the brake-van had reached the inlet points, when, on the Stationmaster (Mr. Addison) getting in the van for the purpose of riding to some sidings half-a-</p>	<p>Although Grassie ranked as a goods porter previous to 1889, he had for 32 years been a brakeman, and since then he acted in a similar position when required.</p> <p>The conditional train in question is frequently run, and, as a rule, Grassie was sent in charge of it, but from the evidence given it appears that he seldom left his van for the work that had to be done at Cove. According to Rule 181, before the engine was detached from the train, a sufficient number of sprags should have been placed in the wheels to prevent the train from running back. This rule evidently was not properly complied with, for which, having taken upon himself the responsibility of uncoupling the train, the porter, J. Main, is to blame.</p> <p>It is impossible to trace the cause of the accident, but owing to the position and condition of a certain piece of timber found near the point where the mishap occurred, I am inclined to think that on Grassie noticing the train moving back, he, instead of using a sprag, took the piece of wood (a split sleeper) which he had in his van, and placed it in front of the wheel of a rear vehicle, and that as by the weight of the train, the outer end</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN— <i>cont.</i>	<p>mile southwards, he noticed the guard was absent. Immediate search was made, and Grassie's body was found lying between the rails of the up main line close to the point where his van had been standing, both legs having been run over.</p>	<p>of the timber was forced upwards, it struck and knocked him under the moving waggon. From the circumstances connected with this case, I am afraid the working at Cove is not as it should be. The train in question had been at that station 25 minutes, and yet, although the guard had not been seen by any of the staff, the Stationmaster (who had assisted with the work), contrary to Rule 171c, himself gave the starting signal direct to the engine driver.</p> <p>A. F.</p>	
CHESHIRE LINES ...	<p>Date of Accident—8th October, 1901. Place at which Accident happened—Gooley Junction. Name of Person injured—Walter Roberts. Age of Person injured—50. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—6 hours. Nature of Injury—Right shoulder dislocated.</p> <p>Description of Accident—Roberts was working in charge of the 9 p.m. goods train from Liverpool to Leeds, which arrived at Gooley Junction at 2.30 a.m. There were waggons to detach at Gooley Junction Sidings, but owing to the main line being occupied by another train, the train with which Roberts was working was stopped clear of the Junction. As soon as the train had been brought to a stand, thinking he might in some way facilitate the work, Roberts left his van and walked towards the engine, but just before reaching the latter, and whilst reading the labels on the waggons, he stumbled over a point rod and fell to the ground. At the time of my enquiry he was still off duty.</p>	<p>The point rod in question runs from the west signal cabin to some main line points about 100 yards distant. It is kept well clear of the rails until reaching the place where, of necessity, it passes under the rails of the up main line.</p> <p>Roberts was well acquainted with its position, and so, with ordinary care, he certainly might have avoided it, consequently the mishap was due to his own want of caution.</p> <p>There is very little foot traffic at the point where Roberts fell, but, for future safety, the Company's representatives who attended my enquiry, agreed to protect the rod with side timbers.</p> <p>A. F.</p>	
	<p>Date of Accident—2nd November, 1901. Place at which Accident happened—Hartford and Greenbank. Name of Person injured—Matthew Shaw. Age of Person injured—50. Capacity in which employed—Foreman shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—6 hours. Nature of injury—Right side and back injured. Off duty 1 week.</p> <p>Description of Accident—During shunting operations at 10 p.m. on the day in question, while Shaw was turning round to signal to his driver, he slipped off the boxing which partly covers the point rods opposite to Hartford North signal cabin and fell, with the result stated above.</p>	<p>At the spot where this mishap happened, the boxing covering the points is 1 foot 10 inches broad, and 8 inches higher than the ballast, then between the end of the boxing and the signal cabin the point rods are exposed for a distance of 2 feet 3 inches. The accident appears to have been chiefly due to the boxing being so narrow and the place being insufficiently lighted. Since this accident five lamps have been erected, which appear to be satisfactory so far as the lighting is concerned.</p>	<p>For future safety, the Company should cover in the whole of the point rods, and, if possible, bring the ballast up to a level with the top of the boxing.</p> <p>J. J. H</p>
	<p>Date of Accident—10th November, 1901. Place at which Accident happened—Huskisson, Liverpool. Name of Person injured—Henry Hutchings. Age of person injured—40. Capacity in which employed—</p>	<p>The trunking in question stands about 3 inches above the ballast. Its position could not be seen by Hutchings, and I am therefore of opinion that</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CHESHIRE LINES— <i>cont.</i>	Foreman shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—11 hours. Nature of Injury—Right hand lacerated. Description of Accident—During shunting operations at about 5.50 p.m., and just before finishing duty, Hutchings ran from the Cattle Dock Siding towards a tunnel which is situated at the outward end of the goods yard for the purpose of seeing that the last of several waggons attached to the shunting engine had cleared certain points, and whilst doing so, he tripped over some trunking which is fixed in the four-foot way of the departure line to protect a point rod from long couplings, and falling to the ballast, he received injury to his right hand which necessitated his being off duty 14 days.	in this case the mishap was purely accidental. The shunting is very heavy at the point referred to, and as it is absolutely necessary for the men to run along the four-foot way of the departure line, at my request, the Company's officers who attended my enquiry readily agreed, and at once gave instructions for the obstruction to be removed, and for the point rod (and others similarly situated) to be properly protected with side timbers, consequently no further action is necessary.  A. F.	
DUNDEE AND ABERDEEN JOINT.	Date of Accident—18th October, 1901. Place at which Accident happened—Easthaven. Name of Person killed—Charles Mann. Age of Person killed—49. Capacity in which employed—Carpenter. Number of booked working hours per diem—10½. How long on duty at time of Accident—6½ hours. Description of Accident—On the date in question, and for three days previously, Mann and another carpenter named Donald Davidson with a labourer named Andrew Warden, were engaged in re-covering the point rods and signal wires immediately in front of the signal cabin, situated on the up side of the line close to the south end of the up platform. At about 1.25 p.m., after fixing a small timber at which point he was well clear of the rails, Mann moved nearer to the up line and just at the moment failing to notice an up train then approaching, he was struck by the footstep, and received injuries from which he died shortly afterwards.	From the evidence given, it appears that the three men referred to were all working with their backs unnecessarily turned towards the approaching train, and none of them saw or heard the train until it was close to them. It is said that owing to a strong wind and the noise of the sea waters just behind the cabin, they were unable to hear the train, but even if that were so, there was nothing to prevent them seeing it. The traffic over that section of the line is not heavy, and I am strongly of an opinion that in this case the mishap was due to want of caution for which each of the three men were equally to blame.  A. F.	
FURNESS ... ..	Date of Accident—1st October, 1901. Place at which Accident happened—Ulverston. Name of Person injured—Robert Potts. Age of Person injured—62. Capacity in which employed—Goods Guard, acting as passenger guard. Number of booked working hours per diem—10½. How long on duty at time of Accident—6 hours. Nature of Injury—Left foot injured. Off duty 10 days. Description of Accident—On the day in question, Potts worked with the 12.10 p.m. passenger train from Ulverston to Priory, and the return 12.28 p.m. train from Priory to Ulverston. On arrival at the latter station, after the passengers had alighted, it was necessary to take the train forward about half a mile and place the vehicles in the goods yard, the brake van, which was in the rear, into one siding, and the two passenger vehicles into another. For this purpose, when the brake van was over the points leading from the down main	The responsibility for this mishap rests with Engine Driver James Dick, who disregarded rule 183 which reads:— “During shunting operations an engine driver must not move his train, although the fixed signal may be lowered, until he has received a hand signal to do so from the guard, shunter, or other person in charge.”  Dick fully admits that he was to blame, but at the same time it is clear from the evidence given, that the engine drivers have been in the habit of setting their trains back, as in this case, when the signal was taken off without receiving any hand signal from the guard to do so.	For future safety it is to be hoped that the Company will take such steps as will ensure strict compliance with this important rule by all concerned at all times.  J. J. H.

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
FURNESSE—cont.	line to the goods yard, Potts, as usual, went in between it and the adjoining vehicle for uncoupling purposes and to release the vacuum pipe, but before he had time to do so, Engine Driver James Dick set the train back for about 60 yards until Signaller J. Stephenson, who was in the west cabin and saw Potts' position, signalled him to stop. While the train was being set back, Potts clung to the vacuum pipe and ran as well as he was able with the train, but his left foot by some means came in contact with a crossing, with the result stated above.		
GLASGOW AND SOUTH WESTERN.	<p>Date of Accident—6th November, 1901. Place at which Accident happened—Ardrossan. Name of Person killed—James Polland. Age of Person killed—50. Capacity in which employed—Platelayer. Number of booked working hours per diem—10½. How long on duty at time of Accident—9 hours.</p> <p>Description of Accident—Six platelayers, including the deceased and the ganger John McDowell, were working on the down line between the Harbour No. 1 and Princess Street Signal Cabins. At about 4 p.m. they were engaged about 50 yards east of the Harbour No. 1 Cabin, at a point where the lines are on an eleven chain curve.</p> <p>At that time a shunting engine with waggons attached ran into a parallel siding and so obscured the view of an approaching down passenger train that it could not be seen by the platelayers until it was within 40 yards of the place where they were at work, and then, although the ganger states that he called to them to get clear, before they could all do so, Polland, who had only been in the Company's service for three days, was knocked down and so injured that he died the same night.</p>	<p>There was no one told off to specially act as a look-out man, but the ganger, J. McDowell, states that he was acting as such.</p> <p>The evidence given by McDowell and one of his men, P. Donnelly, as to the position in which McDowell was standing is conflicting, but even accepting his own statement, it is quite certain he was not standing in a position from which he could get a clear view of an approaching train. McDowell considers he was keeping a proper look out for his men, although he candidly admits that when he first saw the train, which he knew was ten minutes over due, it was not more than 40 yards away.</p> <p>This is certainly not in accordance with Rule 273.</p> <p>I am of opinion that in this case the accident, which might have been even more serious, was due to want of caution on the part of Ganger John McDowell.</p> <p style="text-align: right;">A. F.</p>	
GREAT CENTRAL	<p>Date of Accident—30th October, 1901. Place at which Accident happened—Calvert. Name of Person injured—Wilhelm Cummack. Age of Person injured—31. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—5 hours. Nature of Injury—Right hand injured. Off duty 6½ weeks.</p> <p>Description of Accident—On the day in question, Cummack was working with the 2.35 p.m. goods train from Woodford to Calvert. During shunting operations at the latter station, at about 9.30 p.m. it was necessary for him to place a wagon of coal at the west end of the straight road in Mr. A. W. Itter's brick yard, but before he could place the vehicle in proper position, 15 waggons either empty or partly loaded with bricks had to be drawn out. While walking alongside these vehicles for the purpose of coupling them together with his coupling pole, his foot slipped on some loose broken bricks and he</p>	<p>The whole of the sidings and lines at and about the spot where this accident occurred are owned by Mr. A. W. Itter, brick manufacturer, and although there is from one and a half to two hours' shunting nightly at this place, there is not a single fixed lamp provided.</p> <p>The mishap was due to the path which it was necessary for Cummack to use being in such a faulty condition, and the place being in absolute darkness.</p>	<p>For future safety it is desirable that proper paths should be made for the men to walk upon while performing the necessary coupling or uncoupling operations, and that sufficient light should be provided to enable the men to see to do their work, and the Company should be asked to use their influence with Mr. Itter for these improvements to be made with the least possible delay, and also to arrange as far as possible for the shunting operations to be performed in daylight.</p> <p style="text-align: right;">J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— <i>cont.</i>	<p>overbalanced and fell in the direction of one of the waggons. Whilst falling he placed his right hand in which he had his coupling pole against the waggon side to save himself, when the other end of the pole became fast in the ground, and as the vehicle was slowly moving, his right hand was crushed between the side of it and his coupling pole, with the result stated above.</p> <p>Date of Accident—3rd November, 1901. Place at which Accident happened—Hartington Colliery, Staveley Town. Name of Person injured—Joseph Drake. Age of Person injured—32. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—8 hours 50 minutes. Nature of Injury—Left knee injured. Off duty 6 days.</p> <p>Description of Accident—At about 1.50 a.m., Drake was sent from Staveley Town by Inspector Thomas Taylor to Hartington Colliery, almost opposite, to relieve another shunter working there. After doing so, instead of commencing work, he got upon the footplate of the engine, where he remained until 2.45 a.m., when he was found still conversing with engine-driver C. Barratt by Inspector Taylor, who, requiring the engine to assist an up goods train, had walked across to the Colliery. When Taylor reached the spot where the engine stood, he had some conversation with Drake respecting his idling. They then walked along the sidings, and decided to take 7 waggons from there up to the up-sidings at Staveley Town. These vehicles were coupled to the engine, and Drake gave his driver a signal to start, after which he states that while releasing one of the brakes with his coupling pole, it became entangled in the waggon wheel, with the result stated above.</p>	<p>The 7 vehicles in question had to be drawn up an incline of 1 in 70 for about 300 yards. While this was being done, Inspector Taylor rode upon the footplate of the engine, but as it seemed likely to come to rest before reaching the top of the incline, he jumped off the footplate and walked back to examine the waggons, when he found 4 brakes down, one of which was pinned hard down. Taylor states emphatically that all the brakes were released before the engine started, as he went round both sides of the vehicles, and examined all the brakes himself. The evidence between Taylor and Drake was very conflicting as to whether all the waggon brakes were or were not released before the engine started, but the unsatisfactory manner in which Drake gave his evidence leads me to believe that the responsibility for the mishap rests with himself.</p>	<p>It would appear from the evidence that Drake had not been supplied with a copy of the Appendix as directed in rule 17 (a), and the Company's attention should be drawn to the matter.</p>
	<p>Date of Accident—6th December, 1901. Place at which Accident happened—Dewsnap, Sidings Guide Bridge. Name of Person injured—Edward Harrison. Age of Person injured—35. Nature of Injury—Left shoulder and left ankle bruised.</p> <p>Description of Accident—Harrison is employed as a drayman by Mr. J. Pollitt, Carting Agent to the Great Central Company. On the date mentioned, he went to the goods station for the purpose of carting away some log wood which had arrived by train. Accompanied by a goods porter named Alfred Burgess, he found the wood in a waggon standing near the entrance of the coal or No. 5 siding. At the request of Burgess, the dray was set alongside the waggon, but whilst they were engaged in transferring the wood from the waggon to the dray, Harrison noticed that a waggon was being shunted into the adjoining No. 4, Marhalling siding. To avoid the dray (which was</p>	<p>The foreman shunter, Walter Turner, who was responsible for the waggon being shunted into the No. 4 siding, states, that although the waggon of log wood had been placed in the usual unloading siding, it had only been placed there for short storage until other waggons were removed, when, during the night, the waggon in question would have been pushed further down the siding. If that is correct, I am of opinion that the arrangements were very faulty. The siding is supposed to be used exclusively for unloading purposes, and to my mind, no waggon should be placed in it, unless it can be set sufficiently clear of the fouling point as to allow of its being unloaded in safety.</p>	

J. J. H.

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— <i>cont.</i>	<p>standing too near the No. 4 siding) being struck by the waggon, Harrison did his best to get it removed, but before he could do so, the waggon collided with the dray, with the result that he was knocked down and injured as previously stated.</p> <p>Date of Accident—10th December, 1901. Place at which Accident happened—Darnall Tunnel near Darnall. Name of Person killed—Mark Price. Age of Person killed—29.</p> <p>Description of Accident—Price was employed as a labourer by the Fazakerley Railway Signal Company, who, since January last year have been carrying out certain signalling alterations at and near Darnall. For two months previous to the date of this accident they were so employed at the Darnall Tunnel signal cabin. The tunnel is about 350 yards in length, and is situated about half a mile east of Darnall. The signal cabin is immediately west of the tunnel and in connection with the alterations, a cross-over road disc signal had to be placed in the 6-foot space. When preparing for the disc signal, the ballast taken from the 6-foot space was temporarily placed between the rails of the down main line. On the date in question, Price was engaged in removing the surplus ballast from the down line, and at about 3.50 p.m., whilst so employed, he was knocked down by the engine working the 12 noon express train from Marylebone to Manchester, and so injured that he died the same night.</p> <p>Date of Accident—13th December, 1901. Place at which Accident happened—Sheffield. Name of person injured—Arthur C. Blow. Age of Person injured—26. Capacity in which employed—Pilot Guard.</p>	<p>I am of opinion that the accident was due to want of caution, for which, although Burgess may be somewhat to blame for not first ascertaining that it was safe for the dray to be set as stated, the foreman shunter, W. Turner, is chiefly to blame for not acting in accordance with Rule 112a.</p> <p>A. F.</p> <p>There were three other men, including the foreman (G. England), employed in connection with the same work, but at the time of the mishaps the other two workmen had gone to the cabin for some materials. The foreman states: "At the time of the accident I was standing near to the mouth of the tunnel and thinking out how we could best get through other work. As soon as I noticed the down train running from the tunnel, knowing Price was working a few yards ahead, I called to him to get clear, but before he could do so, he was knocked down. An up train had just entered the tunnel and that prevented us hearing or seeing the express. I have never asked for a look-out man to be provided, except when fitting a facing point lock. I have some knowledge of the Railway Company's Rules, but I am not supplied with a copy of them. I know that according to one rule a look-out man should be appointed when approaching trains cannot be seen, and that when a train is passing on one line, we should stand clear of all others, and I admit that had we done so in this case the accident would not have happened. I have never worked in a more dangerous place than at Darnall Tunnel."</p> <p>There is no doubt that in this case a look-out man should have been appointed, and although foreman G. England may not have exercised all the care he might have done, I am of opinion that the Contractors should have made arrangements with the Railway Company for the provision of a look-out man.</p> <p>The primary cause of the mishap was the fact of the leading waggon in No. 7 siding having been left too near the fouling point, contrary to Rule</p>	<p>For future safety, I recommend that in all cases where Contractor's servants are engaged on or near a running line, the Railway Companies should insist on their general rules of safety being complied with.</p> <p>A. F.</p> <p>Such a severe storm was raging on the morning of the accident that the lamps could not be kept alight, but they are only fitted with single burners, and</p>



## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— cont.	<p>Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—11½ hours. Nature of Injury—Hips injured. Off duty 1 month.</p> <p>Description of Accident—At 5.15 on the morning in question, foreman shunter J. R. Hayward and Blow were engaged with a pilot engine placing waggons in the "Old Park Station" sidings. A number of the vehicles were placed in No. 7 siding and the remainder in No. 8 (the adjoining) siding, after which it was necessary for the engine to be taken to the "Bernard Road" sidings, nearly half a mile distant, and for Blow to accompany it there. For this purpose, after having set the points for No. 8 siding, he walked forward and got upon the footboard of the guard's waggon which was attached to the engine, with the intention of riding upon it to Bernard Road sidings, but while passing the fouling point between Nos. 7 and 8 sidings, he was crushed between the leading waggon standing in the former siding and the one he was riding upon, with the result stated above.</p>	<p>184 (c). To add to Blow's dangers, the place was in absolute darkness. The evidence is somewhat conflicting as to who is responsible for leaving this waggon foul. Hayward, who uncoupled the vehicles at the south side, stated that at the time Blow was at the opposite side of the vehicles, and before uncoupling he asked him if he uncoupled there, would the leading vehicle be clear of No. 8 siding, when the latter replied "Yes, plenty clear." On the other hand Blow emphatically states that he was not within 40 yards of the spot, and that after setting the points for No. 7 siding, he remained there until the vehicles for No. 8 siding were drawn over the points, and after setting them for that siding, he walked forward and got upon the footboard of the guard's waggon. Blow's statement was fully corroborated by both engine driver H. Lockwood and fireman G. A. Danks, and I think Hayward must be mistaken, and if so, he is responsible for the mishap.</p>	<p>are so low, and the nearest one is so far from the spot where the mishap happened, that if they had been burning the yard generally would have been insufficiently lighted. For future safety it is desirable that this busy shunting yard should be better lighted, so that the men may be able to perform the necessary shunting operations with the least possible risk. Steps should also be taken to strictly enforce Rule 184 (c) at all times.</p> <p>J. J. H.</p>
	<p>Date of Accident—31st December, 1901. Place at which Accident happened—Godley. Name of Person injured—Alfred J. Frost. Age of Person injured—41. Capacity in which employed—Goods Guard, employed by the Great Eastern Railway Company. Number of booked working hours per diem—Irrregular. How long on duty at time of Accident—4½ hours. Nature of Injury—Both legs injured. Off duty nine days.</p> <p>Description of Accident—Frost was working with the 8.55 p.m. up goods train from Ardwick to White-moor Sidings, March. When the train arrived at Godley it was placed in No. 4 siding, and, while the shunting operations were being performed, the coupling and uncoupling was done by the shunters stationed there, but as Frost observed three waggons travelling rather quickly into No. 3 siding, he put down the brake lever of one of the vehicles, and, after doing so, placed one end of his coupling pole on the top of the brake lever and underneath the spring of the waggon, after which, for the purpose of bringing more pressure to bear upon the brake, he pressed the whole of his weight upon the pole, and while doing so, the end of it came in contact with the wheel of the waggon, causing the pole to be wrenched from his grasp, and as it revolved with the wheel it struck both his legs, with the result stated above.</p>	<p>The mishap was due to Frost making an improper use of his coupling pole, contrary to the special instructions shown both in the Great Eastern and Great Central Companies' Appendices, copies of which he had been supplied with. He frankly admits that he was well aware that he was disregarding his instructions by using his coupling pole as a brake stick, but there was no brake stick in his brake van for his use, and although he had a different brake van almost daily, he very seldom had one which contained a brake stick.</p>	<p>There are a large number of Goods Guards stationed at March (Frost's home station). It is useless issuing special instructions for the guidance of the men unless proper provision is made to enable them to carry them out, and with that end in view, arrangements should be made for every brake van to be fully equipped.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT EASTERN ...	<p>Date of Accident—1st October, 1901. Place at which Accident happened—Bury St. Edmunds. Name of Person injured—William Rayner. Age of Person injured—57. Capacity in which employed—Inspector. Number of booked working hours per diem—12, with 1 hour off for meals. How long on duty at time of Accident—9 hours. Nature of Injury—Left ankle injured. Off duty one week.</p> <p>Description of Accident—On arrival of a down passenger train at Bury St. Edmunds, at about 2.55 p.m., the engine was, as usual, uncoupled at the east end of the station platform to be taken light to the engine shed. To get it there it was necessary for the driver, J. Rolfe, to proceed ahead along the down main line for a distance of about 230 yards to near Bury Junction signal cabin, and from there, through the cross-over-road on to the up main line, and then along the latter line to the engine shed junction cabin, situated west of the station. While the engine stood at the east side of the cross-over-road points, Signalman H. Maddison, on duty in the Bury Junction cabin, set them in proper position, and after doing so, gave driver Rolfe the right-away signal as an intimation that the line was clear for him to proceed to the engine shed junction but directly afterwards he saw Inspector Rayner violently waving his right hand as a signal (which was understood between them) for him to change the points (west of the cross-over-road) from the position they stood in for the up main line and set them for the straight siding, in which were three vehicles, to the front one of which a shunting horse was attached, with the result that Driver Rolfe, not noticing that the points had been changed, took his engine into the siding too quickly, and when Rayner saw it would strike the horse and collide with the vehicles, he rushed forward to remove the animal, but before he could get it released from the vehicle and clear, the engine knocked it down and he was dragged down with it, receiving the injury stated. In addition, two of the three vehicles referred to were damaged by the force of the collision.</p>	<p>Inspector Rayner was on the down platform when Rolfe started his engine from there, and he could and should have then informed him that he had to take his engine into the straight siding to be attached to three vehicles which were required at the rear of a passenger train then overdue, but at that time he intended this work to be done by the shunting horse, and it was only when the engine was proceeding through the cross-over road that he changed his mind and decided that the vehicle could be moved quicker and better by it. Therefore he commenced to wave his right arm violently for Maddison to change the points quickly before the engine got upon the locking bar. Rolfe saw Rayner waving his arm, but he took it for a signal for him to increase the speed of his engine to get it clear of the up passenger trains then overdue, consequently he applied more steam, and to reach the regulator for this purpose, as his engine was running bunker first, he had to turn round, with the result that when he again looked ahead his engine was travelling so quickly that before he could shut the regulator and bring it to rest, it struck the horse and collided with the vehicles.</p> <p>The responsibility for this mishap chiefly rests with Rayner himself for signalling to Maddison to turn the engine from the up-main line into the straight siding without first satisfying himself that Rolfe knew what was about to be done. At the same time Maddison is not free from blame, as he ought not to have changed the points after he had informed driver Rolfe that the line was clear to the engine shed junction, and as the home signal from that junction was off, Rolfe was justified at travelling at the speed at which his engine was running, as he could easily have brought it to rest at the points leading to the engine shed.</p>	<p>For future safety it is desirable that the Company should forbid the signalmen at Bury Junction to set the points for the straight siding until they have informed the engine driver that he is going into the siding.</p> <p>J. J. H.</p>
	<p>Date of Accident—October 2nd, 1901. Place at which Accident happened—Lowestoft. Name of Person injured—Bertie Tripp. Age of Person injured—27. Capacity in which employed—Carter employed by Messrs. J. &amp; F. Reeve. Nature of Injury—Right side injured. Off duty three weeks.</p> <p>Description of Accident—All carts going to and from the goods yard have to cross what is known as the</p>	<p>The crossing in question is constantly used, but there is no one appointed to attend to it, and as Curtis was aware of this he ought to have carried out Rule 112 (a) and not signalled the driver to push the vehicle foul of the crossing until either he or someone else had been to the spot to prevent carters and</p>	<p>For future safety, the Company should make arrangements so that the shunters can in all cases carry out the important Rule referred to, and with this end in view, it is desirable that some one should be stationed at the crossing whenever it is necessary for waggons to be pushed foul of the path which is so</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>GREAT EASTERN— cont.</b>	<p>"empty yard siding." For this purpose there is a crossing made near the east end of the siding, and while Tripp was passing over it, driving his horse and cart, an engine in charge of Shunter William Curtis was pushing four waggons into the siding from the west end. To get them clear of the adjoining sidings, it was necessary to move eastwards the 26 waggons then standing in the "empty yard siding" and while this was being done, the most eastern vehicle ran forward foul of the crossing and collided with the cart, smashing it, the horse being thrown over and Tripp injured, with the result stated above.</p> <p>Date of Accident—5th October, 1901. Place at which Accident happened—Bures. Name of Person injured—Charles Richard Death. Age of Person injured—22. Capacity in which employed—Horse shunter. Number of booked working hours per diem—14½ with 3 hours off for meals. How long on duty at time of Accident—9 hours. Nature of Injury—Right arm crushed. Off duty 2 weeks.</p> <p>Description of Accident—At about 4 p.m. on the day in question, Death was in charge of a horse which was drawing a waggon along the goods shed road, and, when the vehicle was approaching another waggon at rest, he attempted to get into the 4-foot way for the purpose of coupling the vehicles together with his hands, when by some means, which he is unable to explain, his right arm was caught between the buffers with the result stated above.</p> <p>Date of Accident—11th November, 1901. Place at which Accident happened—Hills Road Junction, Cambridge. Name of Person injured—Stammers Harry Pettit. Age of Person injured—32. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—15 minutes. Nature of Injury—Left knee bruised and sprained.</p> <p>Description of Accident—At about 8.15 p.m. whilst running from the down to the up sidings, for the purpose of reversing the position of the No. 7 hand points, he stepped on one of three closely fixed rails, and his foot slipping from the same caused him to fall, with the result stated.</p> <p>Date of Accident—11th December, 1901. Place at which Accident happened—Peterboro'. Name of Person injured—Thomas Waite. Age of Person injured—62. Capacity in which employed—Engine Shed Labourer. Number of booked working hours per diem—11½. How long on duty at time of Accident—4½ hours. Nature of Injury—Head and left leg injured. Description of Accident—Waite is employed as a shed sweeper. At</p>	<p>others passing over the lines of the "empty road siding."</p> <p>The mishap was due to Rule 112 (a) being disregarded, but at the time Curtis was working alone, his mate having gone to dinner and he could not at the same time attend to the crossing and signal his driver back, owing to the lines being on a curve at the west end of the sidings.</p> <p>The horse shunting is somewhat heavy at this station at certain times of the day, but no one is appointed to assist the horse shunter, and consequently, he has to hold the hand points, attach and release the horse chain, attend to the waggon brakes, and to his horse, therefore, it is not practicable for him to always use a coupling pole for coupling and uncoupling purposes.</p> <p>The mishap appears to have been chiefly due to Death being anxious to perform the shunting operations as quickly as possible, and attempting to couple the vehicles before they were at rest.</p> <p>There is a good lamp fixed within a few yards of the place of accident, and Pettit fully admits he could clearly see the position of the rails.</p> <p>It was not necessary for him to cross the lines at the point in question, and I am therefore of opinion that the mishap was due to his own want of caution.</p> <p>A. F.</p> <p>Waite was fully aware that the shunting engine was at work in the sidings referred to. The steam and smoke from engines standing in the loco sidings adjoining, is said to have been then blowing across the shunting neck, and that may have prevented him seeing the engine approaching, but with the necessary care, I think he might have</p>	<p>frequently used by carters and others while going to and from the goods yard.</p> <p>J. J. H.</p> <p>As it is hardly possible for the horse shunters when working alone to use a coupling pole as directed in Rule 23 (a), it is desirable for future safety that the Company should forbid them to attempt to couple with their hands till the vehicles are at rest.</p> <p>J. J. H.</p> <p>For future safety, I suggest, that whenever it is necessary for refuse to be wheeled to the ash heap, at the time when an engine is working in the siding referred to, arrangements should be made for some one to keep a look out for the person so employed.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT EASTERN— <i>cont.</i>	about 10.45 a.m., after taking a wheel-barrow full of sweepings to a cinder heap, which is on the north or off side of the shunting neck, connected with what is locally known as the Coleman's sidings, he remained at the heap for the purpose of replacing a plank, and whilst doing so, he momentarily forgot his position, and failing to notice an engine then running up the shunting neck, he was struck on the head by the side of the engine and knocked down, receiving injuries, from which, at the time of my inquiry, he was still off duty.	noticed that his position was too near the rails, and having failed to do that, I am of opinion, that the accident was due to his own want of caution.	
GREAT NORTHERN ...	<p>Date of Accident—17th October, 1901. Place at which Accident happened—Ardsey. Name of Person injured—Albert Edward Firth. Age of Person injured—29. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—1½ hours. Nature of Injury—Injured internally. Off duty five weeks.</p> <p>Description of Accident—This accident happened in what is known as the "Old Coal Yard". In this yard, there are 12 sidings with connections at each end, so that shunting can be going on at both ends at the same time. In this case, an engine stood at the South end of No. 4 siding against 30 waggons, which were required in the up goods yard about 500 yards southwards. Goods Guard Edward Watson, coupled all the vehicles to the engine, after which he, as usual, placed a tail lamp on the draw-bar at the rear of the last vehicle. After doing so, Firth informed him that there was another waggon to go with his train, and if Watson would walk forward to his engine, he (Firth) would remove the tail lamp and couple the waggons when it joined the train, but while attempting to remove the tail lamp, although he saw the waggon approaching, he remained in the 4-foot way until it struck the rear vehicle of the train, and was caught between the draw-bar hooks of the two vehicles, with the result stated above.</p>	<p>The mishap was due to Firth's own want of caution, which he frankly admits.</p> <p>J. J. H.</p>	
	<p>Date of Accident—23rd November, 1901. Place at which Accident happened—King's Cross Goods Station. Name of Person injured—Stephen Warboys. Age of Person injured—25. Capacity in which employed—Super-numerary Goods Porter. Number of booked working hours per diem—9. How long on duty at time of Accident—5½ hours. Nature of Injury—Left foot injured. Off duty one day.</p> <p>Description of Accident—On the night in question Warboys was assisting to load goods into the waggons standing in No. 1 Road of the outward goods shed. While wheeling a barrow containing some goods along the platform from the north towards the south end of the shed it was necessary for him to pass between No. 13 crane and a</p>	<p>No warning was given to Warboys or any of the other men working with him, as it was not intended to move the waggons at which they were engaged loading. Head Shunter H. Gilbert was in charge of the shunting operations, and while 10 waggons were being taken from what is known as the "Arcade" to the north end of No. 1 road of the outward goods shed, it was necessary for Gilbert to hold a certain pair of hand points fully 200 yards north of the shed. When the engine was over these points, he ran after it to ride upon the step and</p>	<p>For future safety, it is desirable that instructions should be issued to the enginemmen that they must slacken speed to enable the shunters to join their engines at the points in question, so that the latter can give them definite instructions as to where to bring the vehicles to rest.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN— <i>cont.</i>	<p>loose loading board which was resting against the open door of a waggon, which was resting on the platform. At the moment that he was passing, the waggons in No. 1 road were moved a short distance southwards, causing the open door of the waggon to strike the loose loading board, and the latter to strike his left foot, with the result stated above.</p>	<p>instruct Engine Driver Tom Jay where to bring the vehicles to rest, but the engine was travelling at such a speed that he was unable to reach it, and Jay continued to propel the vehicles till the leading one collided with those standing in the shed. The chief responsibility for the mishap rests with Engine Driver T. Jay, (1) for neglecting to slacken speed to enable Shunter H. Gilbert to join his engine; and (2) for not exercising sufficient care when propelling the vehicles towards the goods shed, and pushing them fully 12 yards further than was required. This could have been avoided, and the accident prevented if Gilbert had been permitted to join the engine.</p>	
	<p>Date of Accident—3rd December, 1901. Place at which Accident happened—Wilsden. Name of Person injured—Amos Russell. Age of Person injured—53. Capacity in which employed—Goods Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—3½ hours. Nature of Injury—Collar bone fractured.</p> <p>Description of Accident—Russell had worked in charge of the 12.55 p.m. goods train from Bradford to Wilsden, and on the forming of the 4.40 p.m. return train at Wilsden it was necessary to get a certain foreign waggon from the goods shed. When the engine was attached to the shed waggons, the unloading of the waggon referred to had not been completed, and to assist in the work, as soon as the last bag of corn had been removed by the porters, Russell got into the waggon to throw out some straw, but whilst he was doing so the engine driver, W. Reeve, without any authority, moved the engine ahead, with the result that Russell was thrown over the rear end of the waggon and injured, as stated above.</p>	<p>Reeve states:—"Whilst the engine was standing at the shed I decided to oil the motion, and when doing so, I noticed one of the cotton pins in the small ends was loose. To enable me to get at the cotton pin it was necessary to move the engine ahead a little, and thinking the shed work had been finished, I took the engine forward, after which I learned of the accident. I now admit I did wrong in moving the engine without first ascertaining that it was safe for me to do so."</p> <p>I am of opinion that in this case Engine Driver, W. Reeve, is alone to blame for this accident, which, had other waggons been in the rear of the one referred to, might have been far more serious.</p> <p>A. F.</p>	
	<p>Date of Accident—24th December, 1901. Place at which Accident happened—Wrenthorpe. Name of Person injured—Arthur E. Bethell. Age of Person injured—32. Capacity in which employed—Goods Guard. Number of booked working hours per diem—11. How long on duty at time of Accident—7½ hours. Nature of Injury—Right ankle injured. Off duty 3½ weeks.</p> <p>Description of Accident—Bethell was working with the 7.45 p.m. goods train from Keighley to Wrenthorpe. On arrival at the latter place he uncoupled his brake van, leaving it standing in the loop line, after which the train of 12 vehicles was drawn over the points at the south end. Shunter J. T. Neville uncoupled the vehicles as required, and shunted them into the different</p>	<p>The mishap was due to Bethell using his coupling pole as a brake stick, contrary to the special instructions shown on page 167 of this Company's Appendix, a copy of which he had been supplied with. His excuse for his action is that there was not a brake stick in his brake van, and that there was not any at Bradford, where he was stationed, either for his use or that of the other goods guards. Further, although he had a different brake van almost daily, he could not remember having seen a brake stick in any of the brake vans for a very long time.</p>	<p>There are upwards of 70 goods guards stationed at Bradford, and arrangements should be made for a brake stick to be kept in every brake van, so that the goods guards can carry out the special instructions referred to.</p> <p>In this case Bethell had no coupling or uncoupling operations to perform, therefore it would not have been necessary for him to have taken his coupling pole with him to pin down the waggon brakes, as he could have left it in his brake van, and used a brake stick for that purpose, if he had been provided with one.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN— <i>cont.</i>	<p>sidings, and Bethell attended to the brakes, to prevent them running out of the sidings down the heavy-falling gradient. After two vehicles had been shunted into No. 3 siding, Bethell loosely put down one of the brake levers and pinned down the other one, but thinking the brake was not hard enough on while the vehicles were at rest, he placed one end of his coupling pole on to the top of the brake lever and underneath the spring of the waggon, pressing with his whole strength on the pole to force the brake lever down, so that he could set the pin in a hole lower down the brake guard. While doing so the pole slipped the hook end, striking his right ankle, with the result stated above.</p>		
GREAT WESTERN ...	<p>Date of Accident—14th October, 1901. Place at which Accident happened—Kidderminster. Name of Person killed—John Hughes. Age of Person killed—59. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—3 hours.</p> <p>Description of Accident—On the night in question, Hughes was working in charge of the 6.30 p.m. goods train from Wolverhampton to London. This train was not booked to stop at Kidderminster, but as it was running a little before its booked time, it had to be stopped specially at that station, and shunted into one of the two up sidings for an up passenger train to pass.</p> <p>As the train was being propelled into the siding, when the brake van reached the hand points which lead to the No. 1 and No. 2 sidings, it left the rails, and apparently whilst Hughes, who until then had remained in his van, was then attempting to get clear, the van turned over, and he was crushed beneath it and killed.</p> <p>Date of Accident—11th December, 1901. Place at which accident happened—Bordesley Junction Loco. shed yard. Name of person injured—Arthur Wm. Lewis. Age of Person injured—23. Capacity in which employed—Fireman. Number of booked working hours per diem—10½. How long on duty at time of Accident—12¼ hours. Nature of injury—Scalp wound and right thigh fractured.</p>	<p>The lever working the hand points in question is not weighted, so that whenever in use it is either held over by hand or kept in position by a specially prepared wooden scotch, which is fixed in the rack immediately in front of the lever.</p> <p>When last used the lever was left scotched over for the points to lie for the No. 1 siding, but even whilst the goods train was waiting to set back from the main line, the night shunting saddle-tank engine, No. 2092, was necessarily brought up the No. 2 siding, en route from the locomotive shed, which is situated at the opposite end of that siding, to the goods yard, and as that engine passed through the hand points, the latter was forced open, and so strained as to prevent them properly closing. This was not noticed by the driver or fireman of the shunting engine, consequently when the brake van reached the points, the wheels took contrary rails, with the result stated.</p> <p>Before allowing his train to be run over the hand points, it was the duty of Hughes, according to Rule No. 185A, and also special instructions in the Company's Appendix, to see that they were properly set, and having failed to do that, he, in my opinion, was to blame for the unfortunate accident.</p> <p>The turntable pit was well lighted, for in addition to the ordinary fixed lamps, four fire lights were provided.</p> <p>The accident appears to have been due to misadventure, at the same time, I think it is to be regretted that the timbers carrying the temporary line were not arranged wide enough to</p>	<p>For future safety, I recommend the Company should consider the advisability of replacing the point lever in question with one of a more modern pattern, which, being properly weighted, would always fall to a safe position.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT WESTERN— <i>cont.</i>	<p>Description of Accident—Owing to the breaking of the engine turntable it had to be removed, and until another could be provided to enable in-going engines to be got to the coaling-stage, a temporary line had to be arranged across the pit. The temporary line was carried on cross timbers about 8 feet in length.</p> <p>Lewis is stationed at Paddington and on the date in question he booked on duty at 9.45 a.m. for the purpose of working with the 10.45 a.m. goods train from Paddington to Bordesley Junction, which was reached at 10.10 p.m. (2½ hours late).</p> <p>When taking the engine No. 2473, tender foremost, to the coaling-stage, it was necessarily brought to a stand by the driver, J. Currie, with the engine standing on the temporary line and the tender on the permanent line. At that point Lewis had to remove the lamps for storage and he got off the footplate for that purpose. After taking the lamps from the leading end of the tender, owing to the narrowness of the timbers which carried the temporary line, to enable him to get the lamp from the stud on the buffer beam of the engine, he had to walk along the side framing, and when returning to the footplate, from some unknown cause, he slipped and fell into the turntable pit below, a distance of about 8 feet 6 inches.</p> <p>Date of Accident—19th December, 1901. Place at which Accident happened—Walsall St. Goods Yard, Wolverhampton. Name of Person injured—Alfred Matthews. Age of Person injured—23. Capacity in which employed—Horse Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—5½ hours. Nature of injury—Right shoulder dislocated.</p> <p>Description of Accident—From the Walsall St. Goods Yard there is a siding leading to the Wolverhampton Corrugated Iron Company's Works. The Siding is on a slight gradient falling towards the goods yard, consequently, after they have been put in motion the waggons will run freely from the Works. On the morning in question, after having set 12 waggons in motion with his shunt horses, Matthews detached the latter and allowed the waggons to run by gravitation. As they approached the goods yard he applied a hand-brake on one of the waggons, but whilst doing so, walking sideways, and for the moment forgetting the pillar of the gateway, through which the waggons were then passing, Matthews was crushed between the pillar and moving waggon.</p>	<p>allow for enginemen walking round their engines, which in a locomotive yard is certainly necessary.</p> <p>A. F.</p> <p>The gateway in question is necessarily arranged between the goods yard and works referred to. The pillar against which Matthews was injured stands about 2 feet 9 inches from the rail. Matthews was acquainted with its position, but being responsible for the safe working of the twelve moving waggons he was no doubt anxious to get and keep them under his control, and whilst giving his whole attention to that, he apparently forgot his own safety.</p> <p>Although Matthews may be somewhat to blame I am of opinion that the primary cause of the mishap was the insufficiency of space between the siding rail and the pillar of the gateway.</p>	<p>Seeing that for braking purposes it is necessary for men to walk alongside the waggons whilst they are passing through the gateway, I recommend that for future safety a space of at least four feet between the rail and pillar should be provided.</p> <p>A. F.</p>
LANCASHIRE AND YORKSHIRE.	<p>Date of Accident—22nd October, 1901. Place at which Accident happened—Fazakerley Junction. Name of Person killed—Thomas Tyrer. Age of Person killed—24. Capacity in which employed—Platelayer. Number of booked</p>	<p>A few minutes previous to the accident, Ganger William Oliver who was in charge of the deceased and Stephens said to them, "I am going to dinner, after you have finished spiking</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>working hours per diem—11½ with 1½ off for meals. How long on duty at time of Accident—6½ hours. Description of Accident—At about 12.15 p.m. on the day in question, the deceased, and platelayer Samuel Stephens, were working near Fazakerley Junction on the up main line. At the time of the accident, Stephens had gone to the outside of the line to get a key to secure a chair, and consequently he was clear of the approaching trains, but the deceased was driving a spike into another chair a yard away from Stephens, and while doing so, with his whole attention fixed upon his work, he was struck and instantaneously killed by the engine of the 11.30 a.m. passenger train from Manchester to Liverpool.</p> <p>Date of Accident—5th November, 1901. Place at which Accident happened—Southport. Name of Person injured—Wm. Ed. Parkinson. Age of Person injured—28. Capacity in which employed—Carriage Cleaner. Number of booked working hours per diem—13. How long on duty at time of Accident—1½ hours. Nature of injury—Left knee injured. Description of Accident—Parkinson and another man named A. Lewis, were engaged in cleaning some carriages standing in the No. 1 storage siding. After having finished his work at one vehicle and when walking towards the next, Parkinson stumbled over a water hydrant</p>	<p>the chairs, go also." When Oliver had gone about 50 yards away from the men he heard the up passenger train approaching, and on looking round saw the deceased still at work. He ran towards him calling while running, "Tom," "Tom" but failed to get his attention. Stephens neither heard the train approaching, nor the engine whistle sounded—nor did the deceased apparently. Engine driver E. Rigby and his fireman, W. Holding, both state that the whistle was sounded when the engine was fully 300 yards from the men, and travelling at over 60 miles an hour, and that they both appeared to step clear, but the next moment Rigby lost sight of them, owing to a cloud of steam and smoke blowing across the up main line from an engine of a goods train, proceeding from the branch line to the down main line. This would prevent the platelayers from seeing the passenger train approaching, and the noise made by the goods train would prevent them hearing it, or the engine whistle when it it was sounded. The mishap appears to have been accidental. At the same time it might have been prevented if a "look out" man had been appointed to protect the platelayers while at work. Ganger Oliver did not consider it necessary to appoint a "look out" man under the discretion allowed him in Rule 273 (a) owing to the men working at a spot where they could under ordinary circumstances see trains approaching from either direction for nearly a mile, and until the rule in question is made more definite and precise, I do not think that the gangers should be blamed.</p> <p>J. J. H.</p> <p>Carriages are washed in most of the storage sidings adjoining the carriage sheds at Southport, consequently water hydrants are arranged at suitable points between the different sidings. Like the one over which Parkinson fell, the hydrant boxes are left standing about 5 inches above the ballast for the purpose, as I was informed at my inquiry, of allowing for the paths being stone paved. It was impossible for Parkinson to see the position of the box in question, for in</p>	<p>For future safety I recommend that either the boxes referred to should be lowered to the ballast or the latter should be made up level with the boxes.</p> <p>A. F.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>LANCASHIRE AND YORKSHIRE—cont.</b>	<p>box fixed in the path he had to take, and falling to the ground, he received injury to his left knee, which necessitated his being off duty 14 days.</p>	<p>addition to there being no lamp provided for the purpose of exposing the obstruction at the time of the mishap, it was very dark and foggy.</p> <p>I am of opinion that in this case the accident was due to the dangerous obstruction caused by the water hydrant box over which the injured man stumbled.</p>	
	<p>Date of Accident—22nd November, 1901. Place at which Accident happened—Wakefield. Name of Person injured—Harry Marsh. Age of Person injured—21. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of accident—2½ hours. Nature of Injury—Right leg injured. Still off duty when inquiry was made.</p> <p>Description of Accident—During shunting operations in the New Witham sidings, Foreman Shunter Charles Lamming instructed Marsh to couple together all the waggons standing in No. 5 siding. After doing so, Marsh commenced to couple together those standing in No. 4 (the adjoining) siding, but he was unable to couple them at one place near the entrance to the sidings, as the vehicles were about 2 feet apart, and for the purpose of joining them so that he could couple them, he attempted to ease the leading vehicles forward by placing his coupling pole in the axle-guard of one of the vehicles, and under one of the spokes of the wheel, then pressing his weight upon the coupling pole. While so engaged some other vehicles were shunted into No. 4 siding, causing the standing vehicles to be moved forward, and the coupling pole to rebound, and strike his right leg, with the result stated above.</p>	<p>The responsibility for the mishap rests with Marsh, (1) for making an improper use of his coupling pole, contrary to the special instructions with which he had been supplied, and (2) for disregarding Rule 24 (a).</p> <p style="text-align: right;">J. J. H.</p>	
	<p>Date of Accident—23rd November, 1901. Place at which Accident happened—Near Wigan. Name of Person killed—William Grayston. Age of Person killed—30. Capacity in which employed—Ballast train labourer. Number of booked working hours per diem—10. How long on duty at time of Accident—7½ hours.</p> <p>Description of Accident—Grayston was one of 18 men who, on the date in question, were engaged with a ballast train that was used for conveying 22 waggons of ballast from Southport to Douglas Bank, which is about a mile west of Wigan. At Douglas Bank there are two signal cabins, known as "East" and "West." On arriving at the "West" cabin the train was run on the up line, and after some of the ballast had been unloaded from the waggons at the point required it was taken forward to the "East" cabin, where it was crossed to the opposite or down line. From the "East" cabin the train was</p>	<p>It is impossible to trace what caused Grayston to fall from the waggon. There is good proof that the waggons were not jerked, and the train was running so slowly that two of the men, B. Cave and J. Stewart, who saw Grayston falling, were able to jump from the waggons on which they were riding and get him clear of the rail before the engine had reached the place where he was lying.</p> <p>I am of opinion that, seeing the train was approaching the point where it would be stopped, Grayston made an attempt to get back into the waggon with a view of being ready to pass to another waggon, and whilst doing so he slipped. There was no necessity for him to sit in the position mentioned, and having so</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>propelled towards the "West," with the intention of placing the remainder of the ballast on the opposite side of the 6-foot space to that on which the other ballast had been unloaded.</p> <p>The waggon at which Grayston had been working was seventh from the engine. It had been emptied on the up line, but according to the general practice, the side door was left down, with the intention of putting it up when all the waggons had been unloaded. After the train had started from the "East" cabin Grayston was seen to be sitting on the floor of the waggon with his legs hanging over the side, and just before reaching the place where the train would have been stopped he was seen falling from the waggon. In doing so his left leg got under the wheel, and was run over, from the effects of which, and internal injuries, he died the same night.</p> <p>Date of Accident—12th December, 1901. Place at which Accident happened—Brindle Heath Junction, Marshalling Sidings. Name of Person injured—John Shaw. Age of Person injured—18. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—12. How long on duty at time of Accident—8½ hours. Nature of Injury—Head and back severely injured.</p> <p>Description of Accident—After having been on duty for 8½ hours as an engine cleaner at Aggcroft engine sheds, which are situated near Brindle Heath Junction, Shaw was sent to the Marshalling Sidings to relieve a fireman who was then engaged on one of two shunting engines working there. Before, however, going to that engine (No. 860) he had to take a message to the fireman, T. Taylor, on the second engine (No. 131) requesting him to go and relieve the driver of engine No. 860. They both left the footplate of the second engine together, with the intention of going direct to engine No. 860. Taylor got off the engine on the left side, and Shaw on the right, but immediately Shaw had got clear of the engine he stepped foul of an adjoining siding, into which some waggons were then being shunted from the No. 2 shunting neck by the engine first referred to, and failing to notice the waggons approaching, he was knocked down, and so injured that at the time of my inquiry he was still off duty.</p> <p>Date of Accident—16th December, 1901. Place at which Accident happened—Westwood Park Colliery Sidings, near Ince. Name of Person killed—Alexander Shepherd. Age of Person killed—19. Capacity in which employed—Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—8½ hours.</p> <p>Description of Accident—The Westwood Park Colliery Sidings are on the down or south side of the Manchester and Liverpool main lines,</p>	<p>exposed himself to danger, he, to my mind, was alone to blame for the accident.</p> <p>A. F.</p> <p>The traffic at Brindle Heath Marshalling Sidings is very heavy. There are two parallel shunting necks, and two engines are kept constantly employed. At the time of the mishap Shaw had only been in the Company's service for seven weeks. He had, in the meantime, been sent out to act as a fireman, but this was the first occasion on which he had walked through the siding in question, and under such circumstances I feel it would be unfair to blame him. It was certainly very unwise to send an inexperienced youth like Shaw through such busy sidings, and to my mind the person who sent him—that is the loco shed night foreman, J. McGhee—is chiefly responsible for the accident.</p> <p>A. F.</p> <p>On the date in question there was much snow lying about the sidings. From the evidence given it appears that a quantity of snow had gathered on the bottom of the clogs which Shepherd was wearing, and as there was no obstruction near to the point where he fell, I am inclined to think that this caused him to stumble, in which case, and under the</p>	<p>For future safety I recommend that unless the "arrival" siding can be kept in a proper condition for receiving waggons to a point beyond the cross-over road provided for running round purposes, other arrangements (such as the removal of the down main line outlet points further towards Liverpool) should be made so that engines can be run</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>which run east and west, and are situated about half way between Hindley and Pemberton. The "arrival" or empty waggon siding is on the east, or Manchester side of the inlet. When waggons have to be detached from up trains, <i>i.e.</i>, coming from the Liverpool direction, it is usual, if the state of the arrival siding will allow, for the waggons to be propelled across the down line to the shunting neck, from which they are drawn into the "arrival" siding, and the engine is then run back through a cross-over road along the "departure" siding, to the shunting neck. On the date in question a special empty waggon train, from Liverpool, arrived at 1.40 p.m. There were eleven waggons to detach, but as the "arrival" siding was nearly full of waggons, the only means of disposing of the waggons to be detached was to tow them on to the "departure" line. To do that the engine was run into a short storage siding adjoining, and after one end of the towing chain had been placed on the draw-bar hook of the engine by the guard, H. Goodridge, the other end was attached to the coupling of the leading waggon by Shunter A. Shepherd. When the waggons had been drawn to a certain point, Goodridge gave a stop signal to the engine driver, but whilst Shepherd was attempting to detach the chain from the waggon, he, from some cause, stumbled, and before he could regain an upright position he was struck by the buffer of the waggon at which he was engaged, and run over, receiving injuries from which he died the following morning.</p>	<p>then existing arrangements, the accident was due to misadventure. At the same time I am strongly of opinion that under no circumstances should the towing of waggons at such busy main line sidings be necessary.</p>	<p>round and the waggons may be detached without risk.</p> <p>A. F.</p>
LONDON AND NORTH WESTERN.	<p>Date of Accident—7th October, 1901. Place at which Accident happened—Preston (Steam Shed). Name of Person injured—William Noblett. Age of Person injured—16½. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—1½ hours. Nature of Injury—Right heel injured. Off duty one week.</p> <p>Description of Accident—At 7.20 a.m. on the day in question, Noblett and Engine Cleaners J. Farrington, J. Clegg, and J. Cowell, were engaged cleaning engine No. 441 which stood about the centre of the shed in No. 7 road over the pit. For the purpose of reaching the motions to clean them, Noblett stood with both feet on the rail, and while in that position the engine was moved a few inches northwards by other engines being set back against it, with the result stated above.</p>	<p>In this case Engine Driver William Hodson and Fireman John Livesey were working engine No. 3488, with which it was necessary to place three dead engines in position for the fitters to work at. For this purpose No. 3488 was first taken into No. 8 road and there coupled to two dead engines which were taken into No. 7 road to be coupled to No. 441, at which the cleaners named were at work. Livesey states that while near engine No. 441, and when the other engines were being propelled towards it, he warned the cleaners by calling "look out number 441," but it is clear from the evidence that none of them heard any warning or Livesey's call, although Clegg and Cowell were both at the outside of the engine cleaning the wheels and side rod respectively, and the former stated that if proper warning had been given he would have heard it. However, if neither Clegg nor Cowell could hear the warning in the position in which they were, it was</p>	<p>For future safety, the Company should make arrangements for "not to be moved" boards being placed upon the front of all engines before the cleaners commence work, and all concerned should be forbidden to move the engines while such boards are so exhibited.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH WESTERN— <i>cont.</i>	<p>Date of Accident—10th October, 1901. Place at which Accident happened—London Road, Manchester. Name of Person injured—John Carroll. Age of Person injured—37. Capacity in which employed—Assistant Capstanman. Number of booked working hours per diem—6½. How long on duty at time of Accident—4 hours. Nature of Injury—Chest crushed. Off duty 4 days.</p> <p>Description of Accident—At about 9.40 on the night in question, Carroll, who was working as assistant to Capstanman Thomas Lamb, was instructed by him to attach the capstan rope to two waggons standing in the No. 8 arch "top side." After doing so, while returning towards the capstan Lamb was working, he was caught between the waggons to which he had attached the capstan rope and another waggon which was being turned by Capstanman Henry Boylan on a turntable at right angles to No. 8 Arch road at the same time, with the result stated above.</p> <p>Date of Accident—17th October, 1901. Place at which Accident happened—Ravenhead Canal Bridge, near St. Helens. Name of Person injured—John Ashcroft. Age of Person injured—48. Capacity in which employed—Foreman Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—3 hours. Nature of Injury—Big toe of left foot injured. Off duty 1 week.</p> <p>Description of Accident—During shunting operations Ashcroft was working the levers of a fixed signal which is used for stopping and calling back the engine drivers, and he also attended to the hand points. The signalpost, upon which the lever in question is fixed, is about 2 yards east of a pair of tumbler points. In this case, after Ashcroft had taken the signal off for the driver to set back, he hurried westwards to set another pair of points for the</p>	<p>still more difficult for Noblett to do so, as he was engaged working underneath the engine, and therefore I think it is unfair to say that the mishap was due to his own want of caution.</p> <p>In my opinion the responsibility for the accident chiefly rests with Fireman J. Livesey for neglecting to satisfy himself that no one was working at engine No. 441 before it was moved; at the same time it is evident that there has not been any satisfactory system for taking proper precaution for the safety of the engine cleaners while at work, although many of them are not supplied with a book of rules.</p> <p>Capstanman Henry Boylan states that he called to Capstanman Thomas Lamb "Wait a minute till I turn this waggon," but he fully admits that he received no reply from him that his warning was heard or understood.</p> <p>The mishap appears to have been chiefly due to Boylan neglecting to satisfy himself in accordance with Rule 112 (a) that he could turn the vehicle in safety, but as neither he nor any of the other witnesses named had been supplied with a copy of the Company's rules, Boylan cannot be blamed for not strictly carrying out the rule quoted.</p> <p>The mishap appears to have been accidental. The ball of the lever of the tumbler points in question is 7 feet from the running line, and the point rod is satisfactorily covered. Ashcroft was well aware of the position of the ball, but in his haste to set the other points in proper position, he momentarily forgot about it. The place, however, was insufficiently lighted.</p>	<p>For future safety it is desirable that all men engaged in such dangerous work as shunting with capstans should be supplied with a copy of the rules as directed in Rule 17 (a).</p> <p>J. J. H.</p> <p>The shunting is very heavy at and about the spot where this accident happened. The only light in the vicinity is that obtained from a paraffin lamp, and for future safety it is desirable that the Company should provide sufficient light to enable the men to see to perform such dangerous work as shunting with the least possible risk.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>LONDON AND NORTH WESTERN—cont.</b>	<p>middle road for a shunt of waggons which had been uncoupled by another shunter and were running down the falling incline, and while doing so, he caught his left foot against the ball of the lever of the tumbler points first referred to, with the result stated above.</p> <p>Date of Accident—12th November, 1901. Place at which Accident happened—Watery Lane, Tipton. Name of Person injured—George Bartley. Age of Person injured—24. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—50 minutes. Nature of Injury—Abdomen injured. Off duty 6 weeks.</p> <p>Description of Accident—Bartley was working with an engine which was taking 14 waggons from the up to the down sidings. To get them there it was necessary for them to be drawn into the up loop line, and after they had been standing there about 20 minutes, Bartley walked to the signal cabin and asked Signaller E. Passant if he could not let them back out of the loop and across the main lines into the down sidings. For this purpose Passant opened the points at the main line end of the loop, but forgot to open the points at the exit end of the loop. When the former points were set in proper position, both Passant and Bartley signalled to the driver to set back, and the latter while doing so stood in the 4-foot way of the loop expecting the vehicles to run out on to the up main line, but as the exit points from the loop had not been set in proper position the vehicles ran to the end of the loop and went off the rails, the leading vehicle knocking Bartley down, with the result stated above.</p>	<p>The responsibility for the mishap rests with Signaller E. Passant for giving an "All right" signal to Bartley and the driver to set back out of the loop before setting the points in proper position for this to be done.</p>	<p>It is frequently necessary for the vehicles to be drawn into the up loop and to stand there waiting main line trains passing before they can be set back into the down sidings, and for future safety it is desirable that a disc signal should be provided which should work in connection with the points leading from the up loop, so that the engine driver would not set back until the points were in proper position.</p> <p style="text-align: right;">J. J. H.</p>
<b>LONDON AND SOUTH WESTERN.</b>	<p>Date of Accident—7th October, 1901. Place at which Accident happened—Stockbridge. Name of Person injured—Alfred Bowden. Age of Person injured—17½. Capacity in which employed—Porter. Number of booked working hours per diem—12 (with 1½ hours off for meals). How long on duty at time of Accident—11 hours 55 minutes. Nature of Injury—Left foot injured. Still off duty when inquiry was made.</p> <p>Description of Accident—On arrival at Stockbridge at about 9.20 p.m. of the 8.25 p.m. down passenger train from Southampton to Andover Junction, the guard of that train, Charles Ridding, informed Bowden that a horse-box at the rear of the train had to be detached. While the train stood at the platform Bowden disconnected the vacuum pipe, and made the coupling slack, after which he instructed Ridding to signal the driver forward over the points leading to the up siding, in which the horse-box was required. While</p>	<p>The mishap was due to Bowden's own want of caution.</p> <p style="text-align: right;">J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND SOUTH WESTERN— <i>cont.</i>	<p>the horse-box was being drawn forward Bowden rode on the step of it, and when it was over the points referred to he leaned over and threw the coupling off before Ridding could signal the driver to stop, and then called out twice to him "right away." After doing so, while the horse-box was still in motion, he attempted to cross in front of it to the opposite side to apply the brake, when he slipped and fell, with his left foot on the rail, where it was caught by the wheel of the horse-box, with the result stated above.</p> <p>Date of Accident—26th October, 1901. Place at which Accident happened—Southampton. Name of Person injured—William Henry Hunt. Age of Person injured—18½. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—4½ hours. Nature of Injury—Both hips injured. Off duty three weeks.</p> <p>Description of Accident—During shunting operations in the goods yard Head Shunter James Rogers instructed Hunt to tell engine-driver William Luffman to set his engine back into No. 4 siding clear of No. 3 (the adjoining) siding. While Hunt was doing so he observed some vehicles coming into the latter siding, and to get clear of them he attempted to get upon the footplate of the engine, but before he could do so he was struck on the leg by the footboard of one of the vehicles travelling into No. 3 siding, and knocked off the engine, with the result stated above.</p>	<p>The chief responsibility for this mishap rests with Head Shunter James Rogers for loose shunting the vehicles into No. 3 siding before the engine in No. 4 siding was sufficiently clear to comply with Rule 184 (c), and as the siding was full Engine Driver Luffman could not get his engine properly clear, there only being just enough room for the vehicles to pass the engine without coming in contact with it.</p>	<p>For future safety the Company should take steps for Rule 184 (c) to be strictly adhered to at all times.</p> <p>J. J. H.</p>
LONDON, BRIGHTON AND SOUTH COAST.	<p>Date of Accident—1st October, 1901. Place at which Accident happened—Ashurst. Name of Person injured—William Vigar. Age of Person injured—46. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—1½ hours. Nature of Injury—Elbow of right arm bruised.</p> <p>Description of Accident—Vigar was working in charge of a goods train from Tunbridge Wells to London, which was stopped at Ashurst at 9 p.m. for the purpose of detaching an empty goods waggon. The siding in which the waggon had to be placed is situated on the east side of the down main line, and as there is only one cross-over road, it had to be propelled through the cross-over and then towed from the down line. After attaching the tow rope to the axle guard, Vigar gave a signal to the engine driver to move ahead, and the waggon was safely towed for a few yards, but then, owing to the engine wheels slipping on the rails, the rope slackened, and when it was again tightened it was pulled from its position, and the hook swinging round, struck Vigar on the elbow.</p>	<p>The traffic at Ashurst is very light, and there is no doubt that the present siding accommodation is sufficient for the requirements. The sidings are on a gradient falling to the entrance, so that there is little difficulty in attaching vehicles to an up train, but in all cases of detaching from an up train, as in the case in question, the vehicles have to be towed, which, owing to the front siding running so wide of the main line, is attended with great risk, and more especially so, as owing to the train arrangements and their being no fixed lights provided, the work is done in darkness. Under the existing arrangements I consider the mishap, which might have been far more serious, was purely accidental.</p>	<p>For future safety, and to obviate the necessity of tow roping, I recommend that the Company should consider the advisability of providing a second cross-over road.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON, BRIGHTON AND SOUTH COAST.	<p>Date of Accident—13th October, 1901. Place at which Accident happened—Near Horley. Name of Person injured—Charles Turvill. Age of Person injured—29. Capacity in which employed—Platelayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—10½ hours. Nature of Injury—Compound fracture of left arm.</p> <p>Description of Accident—Turvill and about 40 other platelayers, collected from different parts of the line, were engaged in unloading a train of twenty waggons of ballast on the down line just south of Horley Station.</p> <p>Turvill was working on a waggon near the middle of the train, which during the time the men were throwing out the ballast was kept moving at a speed of about two miles an hour. When the train had reached a point about a quarter of a mile north of the station named, Ganger C. Reed gave a signal to the engine driver to stop, and, although that was done with care, as the waggons closed together, Turvill, who just at that moment was moving his position in the waggon, lost his balance and fell over the end of the waggon, receiving injuries from which he was still off duty at the time of my Inquiry.</p>	<p>In this case, I am satisfied that there was no carelessness on the part of any of the persons concerned, but that the accident was due to the practice of men working on moving waggons, which in my opinion is very dangerous.</p> <p>Since the occurrence of this accident the practice has been forbidden.*</p>	
	<p>Date of Accident—30th October, 1901. Place at which Accident happened—Willow Walk. Name of Person injured—Herbert Dodd. Age of Person injured—41. Capacity in which employed—Goods Shed Foreman. Number of booked working hours per diem—10. How long on duty at time of Accident—1½ hours. Nature of Injury—Left thigh bruised.</p> <p>Description of Accident—It would be impossible to clearly describe the Willow Walk goods shed in a report. For the purpose of this report it may be sufficient to say that there are 3 parallel lines running the whole length of the shed. Although only one of these (the No. 1) is alongside the loading stage, they are all used for goods loading purposes. It is the practice for the waggons on each line to be set with the side doors opposite to each other, so that boards or gangways can be so placed across the six-foot space, from waggon to waggon, as to allow goods to be taken from the loading stage to even the third line.</p> <p>On the morning in question the waggons at the office end of the shed had all been set for loading, but whilst Foreman H. Dodd was passing over the gangway between the No. 2 and No. 3 lines some other waggons were allowed to close up to those standing on the No. 3 line, with such force as to cause them to move, with the result that the gangway with Dodd on it fell to the ground.</p>	<p>The waggons were moved by capstan with which four men were concerned, namely, Thomas Hill, Foreman Shunter, E. Alden, Capstanman, J. King, Hooker-on, and G. Dibben, Scotcher. At about 11.10 a.m. there were 9 empty goods waggons and 2 empty box waggons at the rear standing on the No. 3 line at the entrance of the shed. Foreman Hill gave instructions for these to be drawn over a certain turntable, so that the two box waggons might be worked into the No. 11 bay. The capstan in question is situated between the No. 1 and No. 2 lines, and as other waggons were then standing on the No. 2 line for the purpose of pulling the 11 waggons in position, Hill gave instructions for the capstan rope to be taken under the waggons in No. 2 and run round a dummy which is placed between the No. 2 and No. 3 lines. After the rope had been attached to the last of the 11 waggons by King, both he and Hill, who were then standing close by, called to the capstanman to "pull up," after which they both left the moving waggons to be braked into position by Dibben, whose special duty, although he frequently assists in the general movement of waggons</p>	<p>The arrangements for capstan working at this station are to my mind very faulty. At present the men seem to trust too much to each other. I suggest that each man should know what his duties are, and be held personally responsible for carrying them through.</p> <p>A. F.</p>

\* The Sub-Inspector understood from the Company's representative at the Inquiry that the practice in question would be discontinued, but the Railway Company have since informed the Board of Trade that this is not the case.

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON, BRIGHTON AND SOUTH COAST — <i>cont.</i>	<p>Date of Accident—11th November, 1901. Place at which Accident happened—Bromley Junction, near Norwood Junction. Name of Person killed—Frederick Bonnor. Age of Person killed—54. Capacity in which employed—Signal Fitter's Labourer. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—11 hours.</p> <p>Description of Accident—Bromley Junction is on the branch line from Balham to Crystal Palace, about half-a-mile north of Norwood Junction. About 90 yards south of the former junction there is a pair of facing points leading to a single line to Norwood Junction. While Bonnor and Signal Fitter John Bishop were working at the locking bar of the points in question, the former was knocked down and killed by the engine of the 4.13 p.m. passenger train from Victoria to Stots Nest.</p>	<p>about the shed, is to scotch waggons on the turntables. To get the last box waggon on the turntable, and not knowing any one was engaged on the waggons standing ahead, Dibben allowed the 10 leading vehicles to run clear of the turntable with a view of turning the last box waggon first, and in doing so the leading waggon closed sharply with those already set for loading. Even if Dibben had known the exact position of the standing waggons it is very questionable whether he could of himself have detached the rope and brought the 11 waggons to a stand within a few inches of a given point. I am of opinion that the accident was due to inattention on the part of Foreman T. Hill and the Hooker-on J. King. Even with the most careful working there was a great risk of the standing waggons being moved, and before giving instructions for the special movement to be made Hill should have seen that all concerned were properly warned, and having given the starting signal under no circumstances should either he or King have left the waggons while in motion.</p> <p>Signal Fitter John Bishop, who was in charge of the work, and narrowly escaped being struck by the same engine, is chiefly to blame for the accident—(1) for working after it was dark and (2) for neglecting to ask for a look-out man to protect Bonnor and himself while at work, as directed in rule 273 (g), as it was almost impossible for them to perform the work they were engaged at, and at the same time keep a proper look-out for their own safety. From the evidence given it would appear that Bishop had drifted into the dangerous system of working on busy sections of the line without taking proper precautions for the safety of himself and the men working under him, and although he stated that on one occasion he asked Ganger J. Mackett at Clapham Junction for a look-out man, and was refused, Mackett so strongly denied it that I am inclined to believe the latter.</p>	<p>For future safety the Company should be asked to impress upon their signal fitters the necessity of strictly carrying out rule 273 (g) at all times when working upon or near to the running lines.</p> <p>J. J. H.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON, BRIGHTON AND SOUTH COAST —cont.	<p>Date of Accident—24th November, 1901 (Sunday). Place at which Accident happened—Near Sydenham. Name of Person injured—James Weller. Age of Person injured—42. Capacity in which employed—Engine Driver. Number of booked working hours per diem—10. How long on duty at time of Accident—6½ hours. Nature of Injury—Skull fractured.</p> <p>Description of Accident—Weller was in charge of side tank engine, No. 355, which was used for working the 1.45 p.m. passenger train from London Bridge to Victoria. When running up the incline leading from Sydenham to the Crystal Palace he fell from the engine, with the result stated, from the effects of which, at the time of my inquiry, he was still off duty.</p>	<p>Weller is unable to explain what were his movements immediately previous to the accident, and as at that time his fireman, T. Seager, was looking over the opposite side of the engine, it is impossible to trace the exact cause of this mishap. From the evidence given, it appears that owing to the slippery state of the rails it was necessary to use sand, and I am of opinion that whilst Weller was leaning over the side of the engine to see if the sand was running free from the sand box, his hands being greasy, slipped from the railing, and he fell head foremost on to the ballast, in which case, to my mind, the accident was due to misadventure.</p>	<p>On many of this Company's engines, doors have been fitted between the upright hand pillars, but there is no such protection on the engine in question, which, for future safety, I suggest should be provided with such doors.</p> <p>A. F.</p>
MIDLAND ... ..	<p>Date of Accident—8th October, 1901. Place at which Accident happened—St. Pancras. Name of Person injured—George Bott. Age of Person injured—63. Capacity in which employed—Brake Examiner. Number of booked working hours per diem—12½. How long on duty at time of Accident—7½ hours. Nature of Injury—Right foot cut off.</p> <p>Description of Accident—It was Bott's duty to examine the brakes and slip couplings of all passenger vehicles worked to and from St. Pancras. On the date in question, at about 12.30 p.m., he was engaged at some carriages standing in the B storage siding, which is situated alongside the No. 3 platform line, and when coming from between the vehicles, where he had been to attend to a slip coupling, he got foul of the No. 3 line, and, failing to notice that a carriage truck was then being propelled by an engine along that line, he was knocked down, and his right foot run over.</p>	<p>In this case the mishap was due to want of caution on the part of the injured man.</p> <p>A. F.</p>	
	<p>Date of Accident—18th October, 1901. Place at which Accident happened—Chapeltown Sidings. Name of Person injured—Tom Bond. Age of Person injured—34. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Right knee bruised.</p> <p>Description of Accident—Bond had worked in charge of the 5.30 p.m. mineral train from Sheffield to Chapeltown. At about 9.50 p.m., whilst engaged in shunting operations in the Chapeltown sidings, and when running alongside some moving waggons for the purpose of uncoupling them with his shunting stick, he stumbled over an exposed point rod, and falling with his knee on the hand point lever he was injured as stated.</p>	<p>The hand point rod in question is fixed about 8 inches above the path that Bond was compelled to take, besides which, although there is plenty of space on the same side of the shunting neck, the point lever is placed within 3 feet of the rail, and every sleeper along the path is fully exposed.</p> <p>I am of opinion that in this case the accident, which (had Bond fallen towards instead of from the moving waggons) might have been far more serious, was due to the dangerous condition of the path.</p>	<p>For future safety the point rod should be protected with side timbers, the lever box should be set further from the rails, and the path the men have to take should be made up level with the face of the sleepers.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>MIDLAND—cont.</b> ...	<p>Date of Accident—1st November, 1901. Place at which Accident happened—Westhouses and Blackwell. Name of Person injured—Samuel Frederick Price. Age of Person injured—29. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—10 minutes. Nature of Injury—Left leg run over, necessitating amputation. Still off duty when inquiry was made.</p> <p>Description of Accident.—All goods trains from the south, on arrival at Westhouses and Blackwell, have to be fly-shunted for the purpose of getting the engine to the opposite end of the train. In this case, in making the fly-shunt, the engine was to be run into No. 8 road, and the train, consisting of 45 vehicles, into No. 1 road. For the purpose of uncoupling it was necessary for Price to run along side the train, and while doing so he had his coupling pole under the coupling and over the buffer of the leading vehicle, and when the engine driver slackened speed he pressed his weight upon his coupling pole to throw the coupling off, when by some means, which he is unable to explain, he stumbled and fell with his left leg across the rail, and was run over, with the result stated above.</p>	<p>The mishap appears to have been due to the dangerous practice of fly-shunting having been permitted, which practice necessitates the person performing the uncoupling operation having the whole of his attention fixed upon the coupling. If, as in this case, the waggon to be uncoupled is fitted with dead buffers, it is more difficult to throw the coupling off. There was no obstruction found near the spot where Price fell, and the lighting for the ordinary mode of shunting seems satisfactory.</p>	<p>There is no rule authorising fly-shunting, yet 20 trains are dealt with in this manner nightly at this place. The practice is contrary to the spirit of rule 24 (a), and is such a dangerous one that it should be strictly forbidden.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—11th November, 1901. Place at which Accident happened—Giggleswick. Name of Person injured—Joseph Hampton. Age of Person injured—45. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—7½ hours. Nature of Injury—Left leg injured. Off duty 3 weeks.</p> <p>Description of Accident.—Hampton was working with the 8.35 p.m. goods train from Carnforth to Leeds, which arrived at Giggleswick at about 11.40 p.m., where two waggons had to be attached. For this purpose he uncoupled the engine, leaving the train of 25 vehicles standing on the up main line on a falling gradient of 1 in 120. Before leaving his brake-van he put the brake hard on, and as a further precaution he put down two of the leading waggon brakes, one of which he pinned down, but from some unexplained cause the train became uncoupled between the second and third vehicle from the brake-van and the uncoupled vehicles started to run forward, and when he saw that they were likely to foul the cross-over road which the engine had to be taken through to get into the siding he ran forward and called to the signalman not to turn the points, and at the same time signalled his driver to stop, and while doing so he caught his foot in the stretcher rod of the points fixed in the four-foot way and fell, with the result stated above.</p>	<p>The mishap appears to have been accidental. At the same time, if Hampton had made use of the sprags which were lying near the spot where he uncoupled his engine, the mishap might have been prevented.</p> <p style="text-align: right;">J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations
MIDLAND— <i>cont.</i> ...	<p>Date of Accident—23rd November, 1901. Place at which Accident happened—Grassmoor, near Hasland. Name of Person injured—William Woodman. Age of Person injured—33. Capacity in which employed—Goods Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours. Nature of Injury—Left hand lacerated.</p> <p>Description of Accident.—A light engine (No. 1698) was run from Avenue Sidings, Hasland, to Holmwood Junction for the purpose of attaching some empty carriages which were to form a workman's train over the Grassmoor mineral branch single line. Woodman was to be the guard in charge, and so on the outward journey, as is usual in such cases, he rode on the engine.</p> <p>From the Avenue Sidings to Grassmoor East the single line is worked by tablet, but from that point the train "staff" arrangements are in force. When the engine was approaching Grassmoor East signal cabin, Woodman, who was then standing on the cabin side of the footplate, said to the engine driver (W. A. Cockett) "All right, Will, I will take the staff," and as Cockett was close by and could watch the movements he did not object, but as Woodman was doing so he allowed his left hand to collide with the staff with such force as to cause injuries, from which he was off duty 14 days.</p>	<p>The engine is said to have been running through the staff station at a speed of about 8 miles an hour.</p> <p>It was no part of Woodman's duty to take the staff, and, although the driver is certainly to blame for allowing him to do so. I am of opinion that, as he fully admits, Woodman is himself to blame for the accident.</p> <p style="text-align: right;">A. F.</p>	
	<p>Date of Accident—29th November, 1901. Place at which Accident happened—Chaddesden Sidings, Derby. Name of Person killed—John Joseph McGlynn. Age of Person killed—48. Capacity in which employed—Labourer. Number of booked working hours per diem—11. How long on duty at time of Accident—1½ hours.</p> <p>Description of Accident—McGlynn was one of eight men, including the ganger, H. Maltley, who for some weeks previous to the date in question had been working in connection with extensive alterations at Chaddesden marshalling sidings. On the date mentioned they were engaged in placing ballast around the sleepers of the up main and down goods lines opposite to the sidings referred to, and at about 7.45 a.m., whilst so employed, McGlynn was struck by the engine of the 7.48 a.m. passenger train from Derby to Nottingham, and so injured that he died the same morning.</p>	<p>From the evidence given it appears that about 7.45 a.m. the eight men were working between the up main and down goods lines. The ganger with the deceased and another labourer named Thomas Lacey were working about 50 yards south of the other five men, when seeing the train approaching he requested McGlynn and Lacey to keep clear and then went forward to warn the others.</p> <p>As the train got nearer Lacey called to McGlynn "Look out, it's close to," but as if anxious to place the ballast then on his shovel in a certain position he got foul of the up line and was knocked down.</p> <p>The traffic on this section of the line is light. There is a good clear view of approaching trains, besides which there is a space of 11 feet between the up main and down goods lines, and, as McGlynn was fully aware that the train was approaching, I am of opinion that the mishap was due to his own want of caution.</p> <p style="text-align: right;">A. F.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS.—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i> ...	<p>Date of Accident—13th December, 1901. Place at which Accident happened—Belle Vue, Manchester. Name of Person injured—Edward King. Age of Person injured—23. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Left knee injured. Off duty 2 days.</p> <p>Description of Accident—On the day in question King and his driver were engaged in placing engines where they were required in the locomotive yard and sheds. At about 5.40 p.m. two engines stood in the slip road, and for the purpose of placing the rear one in the back road both men got upon the leading engine. After this it was necessary to take the latter engine into the shed by the slip road. For this purpose King had to hold a certain pair of hand points, and after the engine had passed over them he followed it, and while it was in motion he got on to the tender footstep, but before he had time to get on to the footplate of the engine he was caught by a waggon standing in what is known as the empty waggon road and thrown to the ground, with the result stated above.</p>	<p>I was unable to trace who was responsible for leaving the leading waggon in the empty waggon road foul of the slip road, which is one of the running lines to the engine shed. In this case, although the mishap was chiefly due to the leading waggon in the empty waggon road having been left foul contrary to rule 184 (c), the error was noticed by King before the accident happened, but in his anxiety to facilitate the work he for the moment forgot about it.</p>	<p>This is another of the many accidents arising from waggons in one siding being left foul of adjoining lines or sidings. For future safety I recommend that the Company should issue definite instructions to all concerned as to the minimum clearance which must be given at the fouling points of all adjoining lines or sidings.</p> <p>J. J. H.</p>
MIDLAND AND LANCASHIRE AND YORKSHIRE JOINT.	<p>Date of Accident—11th November, 1901. Place at which Accident happened—Colne. Name of Person injured—Edward Williams. Age of Person injured—43. Capacity in which employed—Shunter. Number of booked working hours per diem—12, with 2 hours off for meals. How long on duty at time of Accident—1½ hours. Nature of Injury—Ribs injured. Off duty 7½ weeks.</p> <p>Description of Accident—On the night in question Williams, who had been working in the down sidings, was crossing over the main lines for the purpose of going to the up sidings. While doing so he caught his foot in an exposed point rod fixed in the 6-foot way between the down and up main lines, and fell, with the result stated above.</p>	<p>At the time of the mishap Goods Guard Cole, working with a goods train from Colne to Skipton, called out to Williams, and in turning round to reply he fell over the point rod in question, but at the same time if the point rod had not been so badly exposed the accident would not have occurred.</p>	<p>Extensive alterations are in progress at this place to provide additional siding accommodation, and while the work is being done it is to be hoped that the Joint Companies will take steps for the point rod, over which Williams fell, and the others in the vicinity, which are similarly exposed, to be protected with side timbers, with the ballast brought up to a level with the top of the timbers.</p> <p>J. J. H.</p>
NORTH BRITISH ...	<p>Date of Accident—26th October, 1901. Place at which Accident happened—Queen Street, Glasgow. Name of Person injured—William David Clarkson. Age of Person injured—25. Capacity in which employed—Shunter. Number of booked working hours per diem—8½. How long on duty at time of Accident—2½ hours. Nature of Injury—Scalp wound and ribs fractured.</p> <p>Description of Accident—Two vestibule carriages, used for through traffic between London and Glasgow, had been parted en route for the purpose of working a fish truck on the same train to Glasgow. After the fish truck had been shunted out and the two carriages had been brought together again at Queen Street No. 3 platform, it was necessary for the shunters</p>	<p>There is no doubt that a shunter's whistle was sounded as stated by Anderson, but that must have been in connection with other movements in another part of the station. Anderson fully admits he did wrong in not getting proper information before instructing the driver to move the vehicles, for which and the result he expresses regret.</p>	<p>For future safety I suggest the Company should consider the advisability of making arrangements which would avoid the uncoupling of vestibule carriages for the purpose stated.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>to get between them to adjust the buffers and couplings. Whilst the vehicles were standing about a foot apart, and Shunters Clarkson and W. Reid were engaged as stated, a third shunter named J. M. Anderson joined them to prevent any movement of the carriages. Reid requested Anderson to go and stop with the enginemen, telling him not to allow the shunting engine (which, with several vehicles attached, was standing at the tunnel or arrival end of the same platform) to move until they gave a signal that all was right. Shortly afterwards Anderson heard a shunter's whistle, and without making further enquiry he concluded that it was a signal from Reid, and at once instructed the engine driver to propel the vehicles further along the platform, with the result that as the vehicles were closed up Clarkson was crushed and injured as stated.</p> <p>Date of Accident—15th November, 1901. Place at which Accident happened—Glencorse. Name of Person injured—George Goldie. Age of Person injured—25. Capacity in which employed—Assistant Goods Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—6½ hours. Nature of Injury—Both legs bruised.</p> <p>Description of Accident—Glencorse is the terminus for passenger trains of a branch single line from Millerhill, but for mineral traffic the line is extended to Maurice-wood Colliery, about a quarter of a mile distant. The arrival and loop lines are on a slight gradient of 1 in 300, falling towards Millerhill.</p> <p>On the arrival of mineral trains at Glencorse it is usual for the colliery waggons to be shunted back on to the loop line, from which, after the engine has been run round, they are propelled to the Colliery.</p> <p>On the date in question the Head Guard, J. McInnes, detached five waggons from the engine, and shunted them back on to the loop line. After they had cleared the points Goldie attempted to put a sprag in one of the wheels to bring them to a stand, but unfortunately the sprag struck the wheel, and rebounding it hit his legs, with the result stated.</p> <p>Date of Accident—23rd November, 1901. Place at which Accident happened—St. Margaret's Locomotive Yard. Name of Person injured—David Davidson. Age of Person injured—57. Capacity in which employed—Engine Driver. Number of booked working hours per diem—10½. How long on duty at time of Accident—10½ hours. Nature of Injury—Right hand crushed.</p> <p>Description of Accident—Davidson had worked the 1.10 p.m. passenger</p>	<p>On such an easy gradient as that at Glencorse there is certainly no necessity for spragging waggons in motion. The waggon brakes properly applied should meet all requirements.</p> <p>The head guard fully admits that, although it is customary to sprag the waggons during ordinary shunting operations at that station, it is done simply with a view of <i>facilitating</i> the work.</p> <p>Goldie had only been acting as an assistant guard for 14 days previously, consequently even had spragging been really necessary he was inexperienced, and as he was acting to the instructions of the guard it would, in my opinion, be wrong to blame him.</p> <p>To my mind, McInnes acted unwisely in detaching the waggons from the engine and loose-shunting them on to the loop line, but at the same time I certainly think that the primary cause of the accident, which might have been far more serious, was due to the dangerous practice so common on this line of unnecessarily spragging waggons in motion.</p> <p>H. Mantell, the driver of the second engine, No. 213, states: "I could see the position of Davidson's engine in front, but to allow another engine to be brought into the same siding, although I did not intend my engine to move Davidson's, I tried to get as near to it as possible. I did not know that anyone was at work at the standing engine. I regret the</p>	<p>For future safety I recommend that the Company should issue stringent instructions to all concerned that the practice of spragging moving waggons during shunting operations should be discontinued, and that when it is necessary to place waggons on lines not level they should be kept attached to the engine until brought to a stand in the required position, after which, providing the hand brake power is not considered sufficient, sprags could be placed in the wheels without risk of injury either to men or vehicle.</p> <p>A. F.</p> <p>It is necessary that before leaving their engines the drivers should properly examine them, and to do that they must occasionally get in positions which, if the engines were moved, would be dangerous. At present there are no rules in force at St. Margaret's respecting the movement of engines, as in this case, and for future safety I recommend</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>train from Edinburgh to Carlisle and the 8.2 p.m. return train Carlisle to Edinburgh, after which he took his engine, No. 216, to St. Margaret's Loco. Shed Yard. As he entered the coaling stage line two other engines were in front, and as they were taken forward he in turn moved his engine near to the stage where he intended leaving it.</p> <p>On reaching that point he left the footplate, and without having noticed the position of the brakes he commenced the necessary examination of his engine, during which he placed his right hand between the spokes of the driving wheel for the purpose of feeling the condition of one of the big ends. Just at that moment another engine (No. 213) was brought up in the rear, which, being allowed to close up to the standing engine, caused it to move about 12 inches, with the result that Davidson's hand was crushed between the wheel and the side framing.</p>	<p>result, and in future, before allowing my engine to get so near to another, I will first ascertain that it is safe to do so."</p> <p>Owing to insufficient siding accommodation at these sheds it is customary for the engines to be placed as closely together as possible, but of course that did not justify Mantell moving the standing engine, as in this case, for which he is to blame. At the same time I am of opinion that Davidson himself is very much to blame. He was well acquainted with the usual working of the yard, and before placing himself in danger he should certainly have seen that the brakes had been properly applied. Had that been done I am satisfied that his engine would not have been moved.</p>	<p>that, as on other railways, special instructions should be issued to the effect that, before allowing one engine to close up to another standing in a yard or shed, the driver, or other person in charge, must first see that it is safe to do so.</p> <p>A. F.</p>
	<p>Date of Accident—27th November, 1901. Place at which Accident happened—Cowlairs. Name of Person injured—Thomas Pennycook. Age of Person injured—21. Capacity in which employed—Engine Cleaner, acting as Fireman. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours. Nature of Injury—Left foot crushed. Off duty 6 weeks.</p> <p>Description of Accident.—Pennycook was working with tank engine, No. 50, which drew six carriages from what is known as "Lowries Lye," west of the up main line, to the shunting neck leading to the Eastfield sidings east of the down main line, where the vehicles were brought to rest. Goods Guard J. Kennedy then asked Engine Driver Alex. Lemon if he thought that Pennycook could uncouple between the engine and vehicle, as if so they would make a fly shunt. Lemon replied "Yes." Kennedy then walked forward to attend to the hand points, and Lemon instructed Pennycook to uncouple, for which purpose he left the foot-plate and lay across the buffer beam of the engine, which was travelling bunker first. After the vehicles had been given a sufficient impetus to run to where they were required, Driver Lemon reduced speed to enable Pennycook to get the engine coupling off the centre bar hook of the leading vehicle, and while leaning over attempting to do so his left foot was crushed between the buffers when they came together, with the result stated above.</p>	<p>It is contrary to Rules 134 and 139 for firemen to leave the foot-plates and perform uncoupling operations while their engines are in motion, and Driver A. Lemon is to blame for instructing Pennycook to do so. At the same time it is evident that the practice of fly shunting (which is not provided for in the Company's rules and regulations) is far too general at this place, and the chief cause of the mishap was the fact of the men having been permitted to drift into an irregular and dangerous system of working, for which, in this case, there was no necessity, as the engine could have been taken round the vehicles.</p> <p>This was Pennycook's first attempt to uncouple vehicles in motion. He was inexperienced in railway work, having only been in the service six months, and acted as fireman occasionally for one month previous to the date of the accident. Since resuming duty he has daily worked as a fireman, but when I made my inquiry he had not been supplied with a copy of the rules and regulations, in accordance with Rule 17 (a).</p>	<p>On January 24th, 1900, Fireman J. Watt was injured at the same place from similar causes, and if my suggestions, when reporting upon that accident, had been carried out this mishap would not have happened.</p> <p>For future safety the Company should, without further delay, take steps for their own rules and regulations to be strictly adhered to, and also forbid their firemen to leave the foot-plates of their engines in motion. Further, fly shunting should be strictly forbidden at this place, and arrangements should be made for all engine cleaners to be supplied with a copy of the rules and regulations before they are sent out as firemen, so that they may know how to act in cases of emergency.</p> <p>J. J. H.</p>
	<p>Date of Accident—2nd December, 1901. Place at which Accident happened—Sighthill, Glasgow. Name of Person injured—John McIntyre. Age of Person injured—52. Capacity in which employed—Goods Porter. Number of booked working hours per diem—Irrregular. How long on duty at time of</p>	<p>The mishap appears to have been accidental. At the same time, as the hydraulic cranes had only been in use four weeks, the man had not got accustomed to working them, neither had they any instructions to guide them as to the</p>	<p>Other accidents have recently occurred at this station, apparently from similar causes, and it is to be regretted that instructions were not issued as to the mode of working the new hydraulic cranes before they were brought into use;</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>Accident—2½ hours. Nature of Injury—Right knee injured. Off duty 7 days.</p> <p>Description of Accident—J. McIntyre was inside a waggon standing in No. 6 goods shed, assisting to unload the contents, and after attaching the crane hooks to a bale, he gave the "all right" signal to Goods Porter William Higgin, who was working the hydraulic crane, but before setting it in motion he called "look out" to McIntyre, who went and stood at the east end of the waggon. While the bale was being lifted by the crane it swung round a little, with the result that McIntyre's right knee was slightly crushed between the end of the waggon and the bale, and injured, as stated above.</p> <p>Date of Accident—14th December, 1901. Place at which Accident happened—Whifflet. Name of Person injured—John Campbell. Age of Person injured—34. Capacity in which employed—Assistant Goods Guard. Number of booked working hours per diem—Special duty. How long on duty at time of Accident—12½ hours. Nature of Injury—Chest and right arm bruised.</p> <p>Description of Accident—On the night previous to the accident, Campbell booked on duty at 5 p.m. for the purpose of protecting persons passing over a level crossing at Kipps near Whifflet, but at 6 p.m. he received instructions to take up the duties of an assistant goods guard who, through illness, was not able to follow his employment. During the night Campbell was engaged with the Whifflet Pilot in working traffic over the Southerhouse Branch, Whifflet. At about 5.35 a.m. the pilot engine had to take 35 waggons from the Storage Sidings at Whifflet to certain sidings on the branch, and as the assistant guard it was Campbell's duty to hold over the necessary hand points. After the last waggon had cleared the hand facing points leading to the branch line, he ran after the train and tried to get on the axle box of the last waggon, but owing to there being some snow on his shoes and some grease on the axle box, he twice slipped off. As a third attempt he crossed behind the waggon and tried to get on the opposite side, but on that occasion he collided with a waggon standing in an adjoining loop line, and was so injured that, at the time of my inquiry, he was still off duty.</p>	<p>proper mode of working the cranes.</p> <p>Campbell states that he had never worked on the branch line previously, and that he had no knowledge of the waggon in the loop line being foul. It was very necessary that he should accompany the train, and as it was not brought to a stand after clearing the points for him to get on the last waggon, I do not think it would be fair to blame him for attempting to get on it while in motion. The head guard, S. Grant, and the pilot man, E. Kidd, knew that Campbell was strange to the work, and whatever may have been their usual practice, taking his position and the state of the weather into consideration, I certainly think that they ought to have made arrangements for him to have joined the train in safety. I am unable to trace who left the waggons in the loop line so near to the fouling point. They were placed in that position during the previous day, but as both Grant and Kidd were aware of their position, I must hold them equally responsible for neglecting to remove them to a safe position according to Rule 184C.</p>	<p>however, it is to be hoped that such instructions will be issued without further delay. This is very necessary, as any person may have to operate the cranes.</p> <p>J. J. H.</p> <p>For future safety I suggest that when trains are run on to the Southerhouse branch, after the last vehicle has cleared the hand facing points, the train should be brought to a stand to enable the assistant guard or point holder to join it without risk.</p> <p>A. F.</p>
NORTH EASTERN ...	<p>Date of Accident—4th October, 1901. Place at which Accident happened—Locomotive Yard, Blaydon. Name of Person injured—Richard Clarke. Age of Person injured—19. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—10 hours. Nature of Injury—Left knee sprained.</p>	<p>The drain referred to runs close to the ashpit road. It had been opened out during the day for cleaning purposes, and when leaving duty at night the workmen only partly covered it, leaving the ballast on the side. It was very dark at the time of the mishap, and Clarke</p>	<p>For future safety I recommend that the Company should issue general instructions that on no account should drains or such like excavations be left until properly protected.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>Description of Accident—Clarke had been working with the Blaydon Station shunting engine. On returning to the locomotive yard the engine was as usual taken to the ashpit, and after having cleared the ashes from the ashpan, and when walking round the engine for the purpose of sweeping the dust from the side footplate, Clarke stepped on some loose ballast, which, giving way, caused him to slip into a water drain.</p>	<p>had no knowledge of the path having been interfered with.</p> <p>A bricklayer, Thomas Moore, was in charge of the work, and having failed to properly protect the drain, I must hold him responsible for the accident.</p>	
	<p>Date of Accident—5th October, 1901. Place at which Accident happened—Drypool, Hull. Name of Person killed—George Henry Frockingham. Age of Person killed—23. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—8 hours.</p> <p>Description of Accident—The deceased was engaged in shunting operations at what is locally known as the Craven Street end of Drypool Goods Sidings. At about 6.25 p.m., to enable him to signal to the driver of the shunting engine then in the shunting neck, it was necessary for him to stand foul of the up main line, and whilst doing so, although there is independent proof that the driver, Joseph Davis, sounded the engine whistle when approaching the sidings, he was knocked down by the engine of the 5.52 p.m. passenger train from Withernsea to Paragon, and killed.</p>	<p>At Craven, Street looking from the goods siding, the main line is on a curve to the left and the shunting neck is parallel, so that every time the shunting engine, with waggons attached, is run to the latter it is necessary for the shunter to get foul of the up main line for hand-signalling purposes. The space between the front siding and the up main line is about six feet.</p> <p>At the point where Frockingham was knocked down, he would not be able to see the lights on the engine of the approaching train for a greater distance than 150 to 200 yards.</p> <p>Of course, Frockingham was well acquainted with the formation of the lines and the traffic, and, taking all the circumstances into consideration, I can only conclude that the accident was due to momentary forgetfulness on his part.</p>	<p>As a warning to the shunters working at the sidings in question when an up train is approaching, I recommend that an electric gong, working in connection with the Craven Street up home signal, should be fixed on or near to the post of the down home signal, from which point it could be well heard by all concerned.</p> <p>A. F.</p>
	<p>Date of Accident—October 15th, 1901. Place at which Accident happened—West Hartlepool. Name of person injured—Ernest J. Cooper. Age of Person injured—15. Capacity in which employed—Chain Horse Boy. Number of booked working hours per diem—11½. How long on duty at time of Accident—5 hours. Nature of injury—Lungs lacerated, collarbone dislocated, and two ribs broken. Still off duty when inquiry was made.</p> <p>Description of Accident—Two waggons at rest in the "Gas House road" had to be drawn by two horses about 20 yards northwards over the through shunt points. To get them there, Cooper, who was assisting horse shunter, Henry Norman, attached the horse chain to the horse loop fixed on the east side of the leading waggons, but before Norman started his horses he noticed that the brake lever of the rear waggon was down on the west i.e., opposite side to that where he and Cooper stood, and he called out to some men there, "lift the brake up," but they did not appear to hear his call, and, for the purpose of lifting the brake lever, Cooper attempted to pass through the small open space between the rear waggon of the two referred to and the leading one of seven which</p>	<p>There was no necessity for Cooper to have attempted to pass between the buffers of the vehicles to lift up the brake lever, and he acted unwisely in so exposing himself to danger, but he is young and had only been in the service five months and consequently was somewhat inexperienced in railway work.</p> <p>In my opinion, the accident was due to Cooper's excess of zeal rather than want of caution on his part.</p> <p>J. J. H.</p>	



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>NORTH EASTERN— cont.</b>	<p>stood southwards, but before he could get out of the four-foot way at the west side, the latter vehicles were moved northwards by horse shunter John Grantham shunting another waggon against them, with the result that he was crushed between the buffers at the west side and injured, as stated above.</p> <p>Date of Accident—25th October, 1901. Place at which Accident happened—Near Berwick. Name of Person injured—George Straughan. Age of Person injured—21. Capacity in which employed—Platelayer. Number of booked working hours per diem—10½. How long on duty at time of Accident—7 hours, 20 minutes. Nature of Injury—Head injured and left arm run over, which has since had to be amputated, from the effects of which he was still off duty when inquiry was held.</p> <p>Description of Accident—Straughan and platelayer Alexander Spence were spreading ballast in the six-foot way between the up and down main lines between Tweedmouth and Berwick Stations. On the approach of a down passenger train they stopped in the four-foot way of the up main line, when Straughan was knocked down by an engine travelling on that line, with the result stated above.</p> <p>Date of Accident—8th November, 1901. Place at which Accident happened—Hartlepool. Name of Person injured—Matthew William Snowden. Age of Person injured—21. Capacity in which employed—Carriage Cleaner. Number of booked working hours per diem—11. How long on duty at time of Accident—4½ hours. Nature of Injury—Bruised muscles of face and slight concussion.</p> <p>Description of Accident—Immediately after the arrival of a passenger train from Ferryhill at 10 a.m., and even whilst the train was standing at the main line platform, Snowden and five other cleaners commenced, as usual, to clean the interior of the carriages. While they were so engaged the engine was run round to the opposite end of the train and drew it back over some points from which the vehicles were loose shunted into the platform bay line.</p>	<p>Six other platelayers were working about 40 yards nearer Berwick than Straughan and Spence, but there was no look-out man appointed to warn any of the men. Robert Purvis, driver of the engine by which Straughan was knocked down, states that he sounded his engine whistle when about 150 yards from him, but neither Straughan nor Spence heard the warning, and evidently the noise made by the passenger train prevented them from doing so.</p> <p>The mishap appears to have been accidental, although it might have been prevented if Straughan had stepped clear of all lines, as directed in rule 273 (a), but neither he nor Spence had been supplied with a copy of the rules or had had them read or explained to them in accordance with rules 17 (a) and 241, although both men had been in the service six months. Further, ganger John Ray, in charge of the men, was not with them at the time of the mishap, nor had he left any one in charge.</p> <p>The platelayers have since this accident all been supplied with a copy of the rules and had them read and explained to them, and it is to be regretted that this was not done before the mishap occurred.</p> <p>The bay line is on a slight falling gradient towards the buffer stops, so that it is certainly an unwise practice to loose shunt carriages into that siding; at the same time I am of opinion that the primary cause of the mishap was due to want of care on the part of shunter J. Buck. In addition to there being a powerful hand brake the vehicles were all fitted with the Westinghouse brake, and with ordinary care on his part they might have been brought to a stand before reaching the stops.</p>	<p>For future safety it is desirable that whenever it is necessary for the ganger to leave his men, as in this case, he should appoint some one to take charge during his absence.</p> <p>J. J. H.</p> <p>The practice of allowing carriage cleaners to ride about in carriages during shunting operations is, to my mind, not only a very faulty one, but contrary to the Company's special instructions dated 20th March, 1899, and therefore should be forbidden.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>John Buck, who was in charge of the shunting, rode in the leading brake van for the purpose of braking the vehicles into position, but he allowed them to collide with the buffer stops with such force that Snowden, who was working in one of the carriages, was thrown against the side of the vehicle and injured, as previously stated.</p> <p>Date of Accident—17th November, 1901. Place at which Accident happened—Engine Bank Sidings, York. Name of Person injured—John William Pearson. Age of Person injured—43. Capacity in which employed—Engine Driver. Number of booked working hours per diem—10. How long on duty at time of Accident—2½ hours. Nature of injury—Left arm bruised and left knee and right arm sprained.</p> <p>Description of Accident—The three engine bank sidings are situated on the east side of the main lines just north of the station and opposite the locomotive yard. They are provided for and used by engines waiting to work passenger trains from York to the north. Until recently there was only one pit in each siding, but to meet the requirements two others have been made in the east or No. 3 siding. For the conveyance of the enginemen a cabin is provided on the east or off side of the No. 3 siding. Pearson and his mate, Albert Hardgrave booked on duty at 12.15 a.m. for relieving purposes, and until about 2.45 a.m. they were employed in moving engines about the locomotive yard, which is situated on the west side of the main lines. At that time they received instructions to relieve the driver and fireman of an engine No. 2104 that was standing in one of the three bank sidings awaiting any special orders. After having passed over the main lines, and when crossing the bank sidings en route to the cabin where they expected to find the men they had been sent to relieve, Pearson walked into the middle pit, between the rails of the No. 3 siding, with the result stated above.</p>	<p>Pearson states that he seldom visits the bank sidings and that he cannot remember having previously noticed the two extra pits in the No. 3 siding. The second or middle pit is immediately opposite the cabin referred to, and at the time of the mishap, in addition to there being an engine standing partly over the path or space between that and the next new pit, for some reason I am unable to trace, there was no light in the gas lamp fixed near to the No. 1 pit (i.e., the pit nearest to the entrance of the siding), so that neither Pearson nor Hardgrave were able to see the position of the middle pit. Under the circumstances I am of opinion that the mishap was accidental, but at the same time I certainly think that some one in charge of the locomotive arrangements should have noticed the absence of the usual and very necessary light, whereas no one can say how long the light had not been burning, and it was left in the same condition until visited by the lampman at daylight, who then found that although the lamp was not burning the gas was still escaping.</p>	<p>The sidings are fairly lighted when all the lamps are burning except immediately opposite the enginemen's cabin, and at that point I suggest another lamp should be fixed, say on or near to the north-west corner of the cabin.</p> <p>A. F.</p>
	<p>Date of Accident—20th November, 1901. Place at which Accident happened—Newcastle. Names of Persons injured—(1) George Atkinson, (2) Thomas Charlton. Ages of Persons injured—(1) 51, (2) 62. Capacity in which employed—Engine drivers. Number of booked working hours per diem—(1) 10, (2) 11. How long on duty at time of Accident—(1) 2 hours 53 minutes, (2) 7 hours. Nature of injury—Atkinson had his back injured, and was off duty 3 days, and Charlton had his right arm injured and was off duty 9 days.</p> <p>Description of Accident—In this case, at about 12.20 p.m., engine No. 1471, in charge of driver George Atkinson stood on the up Newcastle to Carlisle main line about 120 yards west of No. 3 signal cabin, waiting to get through the</p>	<p>At the time of the collision Atkinson was kneeling on the outside framing of his engine taking out the trimmings of the motion cups. His excuse for leaving the footplate of his engine is that as a goods train was passing, which prevented him taking his engine through the cross-over road he was taking out the trimmings to save a little oil. Charlton states that if he had been on the footplate of his engine the mishap would not have occurred, but that owing to having insufficient time allowed at Newcastle to perform his duties, before returning to Carlisle with</p>	<p>The time allowed engine drivers working trains, such as Charlton was working on the date of the mishap, appears to be somewhat insufficient, especially if the incoming train is running late, as in this case, and the Company might, with advantage, consider the advisability of either allowing the enginemen more time to perform their work or giving them some assistance.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— cont.	cross-over road on its way to Gateshead. While it stood there engine No. 2109, in charge of driver Thomas Charlton, which was being taken over the same cross-over road to reach the turntable, collided with it with such force as to throw both men off their respective engines, with the results stated above.	another passenger train 25 minutes afterwards, it was necessary for him to do part of the oiling while the engine was in motion, and at the time of the collision he was on the outside framing oiling the lubricator of the Westinghouse donkey pump and could not see engine No. 1471. Further, that frequently when working the same trains he had to leave the footplate of his engine for oiling purposes and allow his fireman to take the engine from the passenger station to the turntable. The mishap was chiefly due to both Atkinson and Charlton, being off the footplates of their engines, the latter being most to blame for neglecting to keep a proper look out as directed in rule 139.	
	<p>Date of Accident—25th November, 1901. Place at which Accident happened—Near Sunderland. Name of Person injured—James Craig. Age of Person injured—32. Capacity in which employed—Porter. Number of booked working hours per diem—9. How long on duty at time of Accident—2½ hours. Nature of Injury—Hips and shoulders injured. Off duty 5 weeks.</p> <p>Description of Accident—Craig was in charge of an empty train (consisting of 7 carriages) which had to be placed in the Vilette Road sidings about ¼ mile south of Sunderland. On arrival there, Signalman James Kay instructed him to place the train in No. 3 siding and see if it was clear. For this purpose he walked forward, and seeing the siding was empty and the vehicles standing in No. 4 siding were clear, he signalled his driver back and got on the step of the brake van (the leading vehicle) to get inside it to apply the brake to steady the vehicles back and to take the tail lamp off, but he failed to observe that the leading vehicle in No. 2 siding was not properly clear at the fouling point, with the result that he was crushed between that vehicle and the brake van he was attempting to enter, and injured as stated above.</p>	<p>The mishap was chiefly due to porter John R. Jackson having left the leading vehicle in No. 2 siding standing foul contrary to rule 184 (a). To add to Craig's dangers, the place was in absolute darkness.</p>	<p>The sidings in question are regularly used to place trains of empty carriages in and for shunting purposes, but there is not a single fixed lamp provided, and it is desirable for future safety that sufficient light should be provided to enable the men to perform their work with the least possible risk of injury.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—14th December, 1901. Place at which Accident happened—Percy Main, North Junction. Name of Person injured—Robert Bell Trehwitt. Age of Person injured—48. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—14½ hours. Nature of Injury—Right foot crushed (small bones fractured).</p> <p>Description of Accident—Trehwitt had worked in charge of a special empty waggon train from Tyne Dock to Stollagill, and a return</p>	<p>In this case, Trehwitt may be considered somewhat to blame for not having exercised the care necessary for his own safety, but remembering, that at the time of the mishap, he had been on duty for 14½ hours, it would in my opinion be unfair to expect him to be so alert as otherwise, besides which, although night shunting at that point is heavy, and the position of an over-bridge prevents the smoke</p>	<p>For future safety, I suggest that not only should some good lamps be placed at suitable points near the junction and loop line referred to, but owing to the nearness of the two lines under the bridge, and because for reasons stated, the smoke and steam from one engine prevents a second train or engine approaching being seen, I recommend that so long as one engine or train is at work under or near the bridge, a second engine or</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>mineral train from Stellingill to Percy Main, from which point, after disposing of his train at the Docks, he was to return to Tyne Dock as a passenger. On reaching Percy Main at 5.30 p.m., the train, as usual, was run to a loop line, from which, after the engine had been run round it, the train was to be propelled to a low level mineral line, along which it had to be taken to the Percy Main Docks. After the engine had been run round the train, Trehwitt left his van and walked to the other end of the train for the purpose of placing a lamp on what, whilst being taken along the mineral line, was to become the last vehicle. When the train was being propelled from the loop line, Trehwitt stood nearly opposite the junction signal cabin, and seeing a short goods train approaching on the parallel line, he stood clear for it to pass into the goods yard which is situated alongside the loop referred to. When his own train had reached the mineral line, he attempted to recross the line leading to the goods yard for the purpose of applying the brake on some of the waggons, but whilst he was doing so, the goods train, which it appears had only run into the yard to clear certain trailing points, was set back, and failing to notice it approaching, Trehwitt was knocked down, and his left foot falling on a crossing check rail, was crushed by the wheels of the waggons passing over him. At the time of my inquiry, Trehwitt was still off duty.</p> <p>Date of Accident—18th December, 1901. Place at which Accident happened—Danby. Name of Person injured—John Miller. Age of Person injured—21. Capacity in which employed—Signal Porter. Number of booked working hours per diem—11½ with 1½ off for meals. How long on duty at time of Accident—6 hours 50 minutes. Nature of Injury—Both thighs injured. Off duty 9 days.</p> <p>Description of Accident—The 2.5 p.m. goods train from Grosmont to Stockton arrived at Danby at 4.40 p.m., and during shunting operations at about 4.50 p.m. Miller got upon the foot step of the engine while it was at rest in the front road, to ride to the hand points, which he had to hold for the engine to be taken against some waggons standing in the back road (the adjoining siding). On approaching the fouling point between the two roads mentioned, he saw that the leading waggon standing in the back road was not sufficiently clear for him to pass, consequently he hurriedly jumped off the engine foot step, and after he had done so he was struck by the tender foot step, with the result stated above.</p>	<p>and steam from engines clearing away readily, there is not a fixed lamp provided.</p> <p>The mishap was chiefly due to the leading vehicle in the back road having been left foul, contrary to rule 184 (c), and to add to Miller's dangers the place was in darkness.</p> <p>The evidence is conflicting as to who was responsible for leaving the vehicle foul.</p> <p>The shunting is not heavy at this station, and if the 2.5 p.m., ex Grosmont, due at Danby at 3.10 p.m. is running near to time, the shunting can always be completed in daylight.</p>	<p>train should not be allowed to pass under it.</p> <p>A. F.</p> <p>A large number of accidents have recently occurred on this line from similar causes, and the Company have since this mishap issued special notices, as shown below, in two or three issues of their weekly programmes.</p> <p>"Accidents owing to vehicles being left foul.</p> <p>"A number of accidents have recently arisen owing to Rule No. 184 (Clause C.) not being strictly observed.</p> <p>"Foremen, guards, and all others concerned, are reminded of the necessity of seeing that waggons are not left foul of the adjoining lines."</p> <p>The above instructions still leave the amount of clearance to be given at the fouling points to the discretion of the men, and for future safety it is desirable that the Company should state definitely what the minimum clearance must be.</p> <p>If this is not done, I am strongly of the opinion that other accidents from similar causes will occur.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH-EASTERN— <i>cont.</i>	<p>Date of Accident—19th December, 1901. Place at which Accident happened—Forth Junction, Newcastle. Name of Person injured—Robert Martin. Age of Person injured—28. Capacity in which employed—Labourer. Number of booked working hours per diem—11 with 1½ off for meals. How long on duty at time of Accident—10 hours. Nature of Injury—Head and left leg injured. Still off duty when inquiry was made.</p> <p>Description of Accident—Martin was engaged assisting Plumber David Ross to repair the pipes conveying the gas to two signal lamps, fixed upon one signal post erected near the centre of the 15½ ft. space between the gas road and water road. When the hole was made to reach the pipes, the ballast was thrown on the side nearest to the water road, and after the pipes had been repaired, when Martin was filling in the hole, he stooped down too near the latter road on which some vehicles were being propelled, with the result that he was caught by the axle box of the leading vehicle and injured, as stated above.</p>	<p>The mishap appears to have been chiefly due to Martin's own want of caution. At the time it occurred Martin was working alone. Ross being at the top of the signal ladder testing the gas. A "look-out" hardly appears to have been necessary in this case; at the same time it is clear from the evidence that these men have been permitted to regularly work dangerously near to the running lines in this busy yard, without being protected by a "look-out" as directed in rule 273 (f) and (g). The men cannot be blamed for this system of working, as neither of them have been supplied with a copy of the Company's rules and regulations, in accordance with rule 17 (a).</p>	<p>For future safety it is desirable that these men should without further delay be supplied with a copy of the Company's rules and regulations, and steps should be taken for rule 273 (f) and (g) to be adhered to when the men are at work near to the running lines in this busy yard, especially as it is often necessary for Ross to leave Martin working alone.</p> <p>J. J. H.</p>
	<p>Date of Accident—30th December, 1901. Place at which Accident happened—Albert Edward Dock, near Percy Main. Name of Person injured—Lancelot Legg. Age of Person injured—27. Capacity in which employed—Fireman. Number of booked working hours per diem—Irrregular. How long on duty at time of Accident—1½ hours. Nature of Injury—Head injured. Off duty 1 week.</p> <p>Description of Accident—On the day in question Legg was working with a train from Albert Edward Dock to South Garesfield. When his engine was travelling, tender first, along No. 2 empty (waggon) road, near Albert Edward Dock, it commenced to slip, and for the purpose of seeing whether the sand was running on the rail or not he leaned so far over the side of the engine that his head came in contact with a waggon standing on No. 1 empty road (the adjoining siding), with the result stated above.</p>	<p>Although the accident appears to have been chiefly due to misadventure, it might have been avoided if Legg had looked ahead before leaning over the side of his engine, as it was broad daylight, or if the space between Nos. 1 and 2 roads had been 6 feet instead of only 5 feet.</p>	<p>For future safety the River Tyne Commissioners might be asked to consider the advisability of giving a greater clearance between the sidings, as suggested in my Report <i>re</i> accident to R. Lawson on December 6th, 1900.</p> <p>J. J. H.</p>
SOUTH-EASTERN AND CHATHAM.	<p>Date of Accident—11th October, 1901. Place at which Accident happened—Loughborough Junction. Names of Persons injured—(1) James Reed and (2) George Harman. Ages of Persons injured—(1) 42, (2) 20. Capacity in which employed—(1) Ganger, (2) Platelayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—1 hour and 40 minutes. Nature of Injury—Reed—Head cut and right shoulder bruised. Harman—Left leg bruised.</p> <p>Description of Accident—At Loughborough Junction there are four lines, Nos. 1 and 3 are used for up trains, and Nos. 2 and 4 are for the down trains.</p> <p>On the morning in question Ganger</p>	<p>At the time of the mishap Reed and Harman were packing sleepers, Barrett was attending to the lift, Jack and Pearce was assisting with a lever.</p> <p>At the point of the accident the traffic is very heavy, and yet, from the evidence given, all the four men referred to appear to have been standing with their backs towards the approaching train, which they say "they thought was running on the No. 1 up line."</p> <p>I am of opinion that in this case the accident was due to want of caution, for which the Ganger J. Reed,</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
SOUTH-EASTERN AND CHATHAM RAILWAY— <i>cont.</i>	<p>J. Reed and three platelayers named G. Harman, C. Barrett, and H. Pearce, were working on the No. 3 up line, nearly opposite to the Junction signal cabin, and at about 7.40 a.m. they were engaged in lifting and packing the sleepers immediately south of the cross-over points leading from the No. 1 to the No. 3 lines, when, failing to notice the approach of an empty carriage train which was run through the cross-over road or junction, Reed and Harman were knocked down and injured as stated above.</p> <p>Date of Accident—15th November, 1901. Place at which Accident happened—Abbey Street Bridge, near Spa Road. Name of Person killed—Carlo Calafroni. Age of Person killed—61.</p> <p>Description of Accident—Calafroni was employed as a labourer by Messrs. Harrison &amp; Co., who, as sub-contractors to J. T. Firbank, General Railway Contractor, were responsible for certain asphaltting in connection with the widening of the lines between London Bridge and Spa Road.</p> <p>On the day previous to the accident, it was arranged between the foremen of the first and sub-contractors, H. Green and F. Pamment, respectively, that certain work at one of the girders forming the Abbey Street Bridge should be done on the following Sunday, during which a representative of the Railway Company had agreed to provide a look-out man. The girder in question stands about 14 inches above the sleepers and 18 inches from the rail of the down fast line. To enable him to get the work as forward as possible, Pamment requested his labourer Calafroni to asphalt the first end of the girder, and at about 9.50 a.m., whilst the latter was bending over the girder for the purpose of working at the rail or inner side, he was struck by the engine of a passing train and decapitated.</p> <p>Date of Accident—10th December, 1901. Place at which Accident happened—Dover Harbour Station. Name of Person injured—William John Samuelson. Age of Person injured—51. Capacity in which employed—Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—11 hours (less 2 hours off for meals). Nature of Injury—Head out and chest injured.</p> <p>Description of Accident—From the Harbour Station the main lines run southwards to the pier, but immediately south of the platforms there are branch lines to the west, which, passing over Hawkesbury Street on a sharp curve, lead to and from the South-Eastern section.</p> <p>It was Samuelson's duty to assist with the shunting of both passenger and goods trains. At about 6 p.m., when en route from</p>	<p>having neglected to appoint a look-out man, as to my mind was very necessary, is chiefly to blame.</p> <p>A. F.</p> <p>It appears that after arrangements had been made for the asphaltting on the rail side of the girder to be done on the Sunday, the chief foreman, H. Green, requested Pamment to get the work as forward as possible, meaning, of course, that everything should be in readiness for the following Sunday. Unfortunately, Pamment understood from that, that he was expected to get as much of the asphaltting done as possible, hence his instructing Calafroni to take up the position mentioned.</p> <p>It is impossible to think a man could be working in a more dangerous position, owing to the nearness of the girder to the main line on which trains are constantly passing.</p> <p>I am satisfied Pamment misunderstood the request from Green, but even allowing that, he certainly acted very unwisely in ordering the deceased to work in such danger, consequently, he, to my mind, must be held responsible for the result.</p> <p>A. F.</p> <p>There was no necessity for Samuelson to stand foul of the up branch line, and I am of opinion that in this case the mishap was due to his own want of caution.</p> <p>A. F.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
SOUTH-EASTERN AND CHATHAM RAILWAY— <i>cont.</i>	the passenger station to the goods yard which is situated on the pier section, walking along the west side he had to cross the branch lines. Just at that time a shingle train was run through the junction from the down main to the down branch, and whilst he was standing on the up branch line waiting for that train to pass, he failed to notice another train approaching in the opposite direction, with the result that he was knocked down and so injured that at the time of my inquiry he was still off duty.		

For other Reports of Inquiries into Accidents which have occurred during the twelve months, see [Cd. 774, 775, and 949].

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**By DARLING & SON, LTD., 34-40, BACON STREET, E.**

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**1902.**











RAILWAY ACCIDENTS.

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RETURNS

OF

ACCIDENTS AND CASUALTIES

AS REPORTED TO THE BOARD OF TRADE BY THE SEVERAL RAILWAY COMPANIES  
IN THE UNITED KINGDOM,

During the Three Months ending 31st March, 1902,

In pursuance of the Regulation of Railways Act (1871), 34 & 35 Vict. cap. 78 ;

TOGETHER WITH

REPORTS OF THE INSPECTING OFFICERS, ASSISTANT  
INSPECTING OFFICERS, AND SUB-INSPECTORS OF THE  
RAILWAY DEPARTMENT TO THE BOARD OF TRADE,

UPON

CERTAIN ACCIDENTS

Which were inquired into.

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Presented to both Houses of Parliament by Command of His Majesty.

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1902.

[Cd. 1232.] Price 1s. 3d.

# TABLE OF CONTENTS.

	PAGE
<b>SUMMARY of ACCIDENTS and CASUALTIES reported to the BOARD of TRADE during the Three Months ending 31st March 1902</b> ... ..	3
<b>TABLES :—</b>	
<b>GENERAL NOTE showing basis on which TABLES are COMPILED</b> ... ..	8
<b>No. 1.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ; with figures for the UNITED KINGDOM for the corresponding period of the previous Year</b> ... ..	9
<b>No. 2.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, in the different CLASSES of ACCIDENTS to TRAINS</b> ... ..	10
<b>No. 3.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS, or by the MOVEMENT of RAILWAY VEHICLES</b> ... ..	12
<b>No. 4.—NUMBER of PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the different CLASSES of ACCIDENTS occurring on the Lines of the several RAILWAY COMPANIES, to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the COMPANIES</b> ... ..	14
<b>No. 5.—NUMBER of PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS, or the MOVEMENT of RAILWAY VEHICLES—</b>	
A. PASSENGERS ... ..	16
B. SERVANTS of COMPANIES and CONTRACTORS ... ..	18
C. OTHER PERSONS ... ..	24
<b>No. 6.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the INJURIES ; with figures for the corresponding period of the previous Year</b> ... ..	26
<b>No. 7.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES ; and also the Total Number of Persons employed in each Class of Service</b> ... ..	27
<b>No. 8.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, on the PREMISES of the RAILWAY COMPANIES ; with figures for the UNITED KINGDOM for the corresponding period of the previous Year</b> ... ..	28
<b>No. 9.—NUMBER of SERVANTS of COMPANIES and of CONTRACTORS reported by the several RAILWAY COMPANIES to the BOARD of TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES</b> ... ..	30
<b>No. 10.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES ; and also the Total Number of Persons employed in each Class of Service</b> ... ..	36
<b>No. 11.—SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &amp;c., reported to the BOARD of TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM, classified according to the NATURE of the ACCIDENT ; with figures for the UNITED KINGDOM for the corresponding period of the previous Year</b> ... ..	37
<b>No. 12.—NUMBER of ACCIDENTS of each Class to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &amp;c., reported to the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM</b> ... ..	38
<b>REPORTS ON ACCIDENTS INQUIRED INTO—</b>	
A. REPORTS by INSPECTING OFFICERS ... ..	43
B. REPORTS by ASSISTANT INSPECTING OFFICERS ... ..	77
C. REPORTS by SUB-INSPECTORS ... ..	117

**Summary of Accidents and Casualties which have been reported to the Board of Trade as having occurred upon the Railways in the United Kingdom during the Three Months ending 31st March 1902.**

**I.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c.**

Accidents to trains, rolling-stock, permanent-way, &c., caused injuries to 86 persons, none of which were fatal, viz. :—

	Total for 3 months ending 31st March 1902.		Total for the corresponding period in 1901.	
	Killed.	Injured.	Killed.	Injured.
Passengers ... ..	—	56	—	80
Servants of Companies ... ..	—	30	2	54
Other Persons ... ..	—	—	2	1
Total ... ..	—	86	4	135

Of the 86 persons injured, 9 passengers and 1 servant were injured in collisions between passenger trains or parts of passenger trains ; 22 passengers and 8 servants were injured in collisions between passenger trains and goods or mineral trains, light engines, or other moving vehicles ; 9 servants were injured in collisions between goods trains, light engines, or other moving vehicles ; 4 passengers and 1 servant were injured in collisions between trains and vehicles standing foul of the line ; 14 passengers were injured in collisions between trains and buffer-stops or vehicles at rest, caused by trains running into stations at too high a speed ; 4 servants were injured by collisions between trains and buffer-stops from causes other than the above ; 1 passenger was injured by a carriage of a passenger train leaving the rails ; 1 servant was injured by the engine of a goods train leaving the rails ; 1 servant was injured by a collision between a goods train and crossing gates ; 5 servants were injured by accidents arising from the failure of wheels, couplings, &c. ; and 6 passengers were injured in other accidents.

Altogether, including accidents in which no personal injury was sustained, there were reported during the three months, 5 collisions between passenger trains or parts of passenger trains ; 12 collisions between passenger trains and goods or mineral trains, light engines, &c. ; 8 collisions between goods trains, parts of goods trains, light engines, &c. ; 6 collisions between trains and vehicles standing foul of the line ; 12 collisions between trains and buffer-stops, &c., of which 8 were caused by trains running into stations or sidings at too high a speed, and 4 were due to other causes ; 1 case of a train coming in contact with a projection from another train on a parallel line ; 11 cases of passenger trains or parts of passenger trains leaving the rails ; 1 case of a part of a goods train leaving the rails ; 36 cases of trains running through gates at level-crossings or into other obstructions\* ; 1 case of a fire in a train ; and 2 cases coming under the heading of miscellaneous accidents to trains.

In addition to the above the following accidents to, and failures of, rolling-stock and permanent-way were reported, viz. :—2 cases of the failure of the machinery of engines ; 68 failures of tyres ; 1 failure of a wheel ; 44 failures of axles ; 7 failures of couplings ;

\* During the three months, 4 horses, 6 beasts and cows, 13 sheep, 1 deer, and 3 dogs were run over and killed ; and 1 beast, 2 sheep, and 2 dogs were injured.

1 failure of a bridge ; 101 failures of rails ; 4 slips in cuttings or embankments ; 3 cases of fire at stations, &c. ; and 1 other accident.

Of the 68 tyres that failed, 6 were engine-tyres, 2 were van-tyres, and 60 were waggon-tyres ; of the waggons, 42 belonged to owners other than the Railway Companies ; 39 of the tyres were made of iron and 29 of steel ; 61 of the tyres were fastened to the wheels by bolts, screws, or rivets, 3 of which left their wheels when they failed ; and 7 by other methods ; 11 tyres broke at screw or rivet holes, 16 in the solid, and 41 split longitudinally or bulged.

Of the 44 axles that failed, 26 were engine axles, viz., 21 crank or driving, and 5 leading or trailing ; 4 were tender axles ; 2 were coach axles ; and 12 were waggon axles ; of the waggons, 7 belonged to owners other than the Railway Companies. Of the 21 crank or driving axles, 3 were made of iron and 18 of steel. The average mileage of the 3 crank or driving axles made of iron was 288,336 miles, and of 17 of the crank or driving axles made of steel 260,260 miles.

Of the 101 rails that broke, 17 were double-headed, 72 were single-headed, and 12 were Vignoles' rails ; of the double-headed rails, 8 had been turned. All of these rails were made of steel.

## II.—ACCIDENTS TO PASSENGERS FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., INCLUDING ACCIDENTS FROM THEIR OWN WANT OF CAUTION OR MISCONDUCT ; ACCIDENTS TO PERSONS PASSING OVER LEVEL-CROSSINGS ; TRESPASSERS ; AND OTHERS.

Of the 167 persons killed and 496 injured under this heading, 37 of the killed and 429 of the injured were passengers. Of these, 13 were killed and 42 injured by falling between carriages and platforms, viz., 7 killed and 19 injured when getting into, and 6 killed and 23 injured when alighting from, trains ; 2 were killed and 267 injured by falling on to platforms, ballast, &c., viz., 30 injured when getting into, and 2 killed and 237 injured when alighting from, trains ; 2 were killed and 1 injured by falling off platforms and being struck or run over by trains ; 11 were killed and 4 injured whilst passing over the line at stations, viz., 6 killed and 3 injured at stations where there is a subway or footbridge, and 5 killed and 1 injured at stations where there is neither a subway nor footbridge ; 78 were injured by the closing of carriage doors ; 6 were killed and 10 injured by falling out of carriages during the travelling of trains ; and 3 were killed and 27 injured from other causes. 11 persons were killed and 2 injured whilst passing over railways at level-crossings, viz., 4 killed at public level-crossings, 6 killed and 2 injured at occupation-crossings, and 1 killed at a footpath crossing. 74 persons were killed and 31 injured when trespassing on railways ; 35 persons committed suicide on railways, and 2 persons were injured while apparently attempting to commit suicide ; 6 persons were killed and 19 injured while on business at stations and sidings ; and of other persons not specifically classed, 4 were killed and 13 injured.

## III.—ACCIDENTS TO SERVANTS IN THE EMPLOY OF RAILWAY COMPANIES OR CONTRACTORS, CAUSED BY THE TRAVELLING OF TRAINS OR THE MOVEMENT OF VEHICLES USED EXCLUSIVELY UPON RAILWAYS.

During the three months there were 110 servants of companies or contractors reported as having been killed and 993 injured, in addition to those included in Division I. 4 were killed and 133 injured whilst coupling or uncoupling vehicles ; 5 were injured by coming in contact, whilst riding on vehicles during shunting, with



other vehicles, &c., standing on adjacent lines; 1 was killed and 7 injured whilst passing over or standing upon buffers during shunting; 1 was killed and 47 injured in getting on or off, or by falling off, engines, waggons, &c., during shunting; 5 were killed and 88 injured whilst braking, spragging, or chocking wheels; 1 was killed and 24 injured whilst attending to ground-points; 2 were killed and 113 injured whilst moving vehicles by capstans, turntables, props, &c., during shunting; and 9 were killed and 128 injured by various other accidents during shunting operations; 1 was killed and 13 injured by falling off engines, &c., during the travelling of trains; 60 were injured whilst getting on or off engines, vans, &c., during the travelling of trains; 4 were killed and 20 injured by coming in contact with over-bridges or erections on the sides of the line during the travelling of trains; 1 was killed and 86 injured whilst attending to the machinery, &c., of engines in steam; 17 were killed and 27 injured whilst working on the permanent-way, sidings, &c.; 1 was killed while attending to the gates of a level crossing; 36 were killed and 74 injured whilst walking, crossing, or standing on the line on duty, of whom 23 were killed and 57 injured at stations, and 13 were killed and 17 injured at other parts of the line; 11 were killed and 20 injured by being caught between vehicles; 1 was killed and 20 injured by falling or being caught between trains and platforms, walls, &c.; 4 were killed and 12 injured whilst walking, &c., on the line on the way home or to work; and 11 were killed and 116 injured from various other causes.

Altogether, the number of persons killed and injured on railways in the United Kingdom in the course of public traffic, during the three months ending 31st March 1902, as reported to the Board of Trade, was as follows:—

	Killed.	Injured.	Total for the corresponding period in 1901.		Increase.		Decrease.	
			Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers:								
From accidents to trains, rolling-stock, permanent-way, &c.	—	56	—	80	—	—	—	24
By accidents from other causes ..	37	429	38	363	—	66	1	—
Servants of companies or contractors:*								
From accidents to trains, rolling-stock, permanent-way, &c.	—	30	2	54	—	—	2	24
By accidents from other causes ...	110	993	113	1,096	—	—	3	103
Other Persons:								
From accidents to trains, &c. ...	—	—	2	1	—	—	2	1
Persons passing over railways at level-crossings.	11	2	9	5	2	—	—	3
Trespassers (including suicides) ...	109	33	118	29	—	4	9	—
Persons on business at stations, &c., and other persons not coming in above classifications.	10	32	14	41	—	—	4	9
Total ... ..	277	1,575	296	1,669	—	—	19	94

\* Of contractors' servants 2 were killed and 4 injured.

*Note.*—In addition to the above, the Railway Companies have reported to the Board of Trade, in pursuance of the 6th Section of the Regulation of Railways Act, 1871, the following accidents which occurred upon their premises, but in which the movement of vehicles used exclusively upon railways was not concerned, namely:—1 passenger killed and 82 injured whilst ascending or descending steps at stations; 20 injured by being struck by barrows, falling over packages, &c., on station platforms; 1 killed and 29 injured by falling off platforms; and 1 killed and 31 injured from other causes. Of servants of companies or contractors, 2 killed and 399 injured whilst loading, unloading, or sheeting waggons; 165 injured whilst moving or carrying goods and luggage in stations or sheds; 54 injured whilst working at cranes or capstans; 103 injured by the falling of waggon-doors, lamps, bales of goods, &c.; 358 injured whilst attending to engines at rest in sheds, &c.; 1 killed and 266 injured by falling off, or when getting on or off, engines or vehicles at rest; 66 injured by falling off, or when getting on or off platforms; 1 killed and 74 injured by falling off ladders, scaffolds, &c.; 1 killed and 204 injured by stumbling whilst walking on the line; 15 injured by being

trampled on or kicked by horses whilst engaged in railway work ; 1 injured through being struck by an article thrown from a passing train ; 145 injured by the falling of rails, sleepers, &c., while at work on the line ; 2 killed and 274 injured in other ways when at work on the line or in sidings ; and 2 killed and 537 injured from various other causes. Of persons transacting business on the companies' premises, 2 were killed and 84 injured ; and of other persons not coming within the above classifications, 3 were killed and 24 injured ; making a total in this class of accidents of 17 persons killed and 2,931 injured.

Thus the total number of personal accidents reported to the Board of Trade by the several Railway Companies during the three months amounts to 294 persons killed and 4,506 injured.

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**TABLES OF ACCIDENTS.**

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### N O T E.

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All accidents which occur in the working of railways or on railway premises to persons other than servants of the companies (described in the following Tables as "Passengers" and "Other Persons") are required to be reported to the Board of Trade, however slight the injuries may be ; but, as regards servants of the companies, only those accidents which prevent the servant injured from being employed for five hours on his ordinary work on any one of the three working days next after the accident are reported.

The following Tables therefore show the total number of persons other than servants of the companies injured from accidents arising in the working of railways or on railway premises, but only the number of servants whose injuries prevented them working for five hours on any one of the three working days next after the accident.

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TABLE No. 1.

**Summary Statement of the Number of Passengers, Servants of the Companies and of Contractors, and other Persons reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, during the Three Months ending 31st March 1902; with corresponding figures for the UNITED KINGDOM for March Quarter 1901.**

	1902.								1901.	
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.		UNITED KINGDOM.		UNITED KINGDOM.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	...	46	...	7	...	3	...	56	...	80
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	29	398	7	28	1	3	37	429	38	363
<b>TOTAL OF PASSENGERS ...</b>	29	444	7	35	1	6	37	485	38	443
<b>SERVANTS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	...	23	...	6	...	1	...	30	2	54
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	86	855	19	116	5	22	110	993	113	1,096
<b>TOTAL OF SERVANTS ...</b>	86	878	19	122	5	22	110	1,023	115	1,150
<b>OTHER PERSONS :—</b>										
In accidents to trains. (See Table No. 2.)	...	...	...	...	...	...	...	...	2	1
While passing over railways at level crossings. (See Table No. 3.)	9	1	...	1	2	...	11	2	9	5
While trespassing on line. (See Table No. 3.)	52	17	18	13	4	1	74	31	86	27
Suicides and attempted suicides. (See Table No. 3.)	31	2	3	...	1	...	35	2	32	2
On business at stations and sidings. (See Table No. 3.)	6	17	...	2	...	...	6	19	6	36
Miscellaneous (not included above). (See Table No. 3.)	3	9	1	4	...	...	4	13	8	5
<b>TOTAL OF OTHER PERSONS</b>	101	46	22	20	7	1	130	67	143	76
<b>GRAND TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.</b>	216	1,368	48	177	13	30	277	1,575	296	1,669

*Note.*—For the number of persons killed or injured on railway premises otherwise than through accidents to trains or the movement of railway vehicles, see Tables 8, 9, and 10.

TABLE No. 2.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, in the different CLASSES of

CLASS OF ACCIDENT.	NUMBER OF PASSENGERS.								NUMBER OF SERVANTS.							
	England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
1. Collisions between passenger trains or parts of passenger trains.	...	9	...	...	...	...	...	9	...	1	...	...	...	...	...	1
2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.	...	21	...	1	...	...	...	22	...	7	...	1	...	...	...	8
3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.	...	...	...	...	...	...	...	...	...	7	...	2	...	...	...	9
4. Collisions between trains and vehicles standing foul of the line.	...	4	...	...	...	...	...	4	...	...	...	1	...	...	...	1
5. Collisions between trains and buffer-stops, or vehicles at rest:																
(a) From trains running into stations at too high a speed.	...	11	...	...	...	3	...	14	...	...	...	...	...	...	...	...
(b) From other causes ...	...	...	...	...	...	...	...	...	...	3	...	1	...	...	...	4
6. Trains coming in contact with projections from other trains running on parallel lines.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7. Passenger trains or parts of passenger trains leaving the rails.	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
9. Trains running through gates at level-crossings, or into other obstacles.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
10. The bursting of boilers or tubes, &c., of engines.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake apparatus, and ropes on inclines).	...	...	...	...	...	...	...	...	...	4	...	...	...	1	...	5
12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13. Fires in trains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14. Other accidents	...	...	...	6	...	...	...	6	...	...	...	...	...	...	...	...
TOTAL	...	46	...	7	...	3	...	56	...	23	...	6	...	1	...	30

N.B.—The Board of Trade state the cause of accident as returned by the Companies but do not guarantee

## INJURED IN ACCIDENTS TO TRAINS.

TABLE No. 2.

reported to the BOARD of TRADE by RAILWAY COMPANIES, as having been KILLED or INJURED ACCIDENTS to TRAINS, during the Three Months ending 31st March 1902.

NUMBER OF OTHER PERSONS.								TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.								CLASS OF ACCIDENT.
England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.		
Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	
...	...	...	...	...	...	...	...	...	10	...	...	...	...	...	10	1. Collisions between passenger trains or parts of passenger trains
...	...	...	...	...	...	...	...	...	28	...	2	...	...	...	30	2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.
...	...	...	...	...	...	...	...	...	7	...	2	...	...	...	9	3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.
...	...	...	...	...	...	...	...	...	4	...	1	...	...	...	5	4. Collisions between trains and vehicles standing foul of the line.
...	...	...	...	...	...	...	...	...	11	...	...	...	3	...	14	5. Collisions between trains and buffer-stops, or vehicles at rest : (a) From trains running into stations at too high a speed.
...	...	...	...	...	...	...	...	...	3	...	1	...	...	...	4	(b) From other causes.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6. Trains coming in contact with projections from other trains running on parallel lines.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	7. Passenger trains or parts of passenger trains leaving the rails.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	9. Trains running through gates at level-crossings, or into other obstacles.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10. The bursting of boilers or tubes, &c., of engines.
...	...	...	...	...	...	...	...	...	4	...	...	...	1	...	5	11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines)
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13. Fires in trains.
...	...	...	...	...	...	...	...	...	...	...	6	...	...	...	6	14. Other accidents.
...	...	...	...	...	...	...	...	...	69	...	13	...	4	...	86	TOTAL.

or otherwise adopt the statement, except in cases where an official inquiry has been held.

## NUMBER OF PERSONS KILLED OR INJURED FROM THE RUNNING

TABLE No. 3.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS or by the

	ENGLAND AND WALES.		SCOTLAND.	
	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>				
1. From falling between trains and platforms :				
(1) When entering trains ... ..	4	16	3	1
(2) When alighting from trains ... ..	4	21	2	2
2. From falling on to the platform, ballast, &c. :				
(1) When entering trains ... ..	...	29	...	1
(2) When alighting from trains ... ..	1	226	...	11
3. From falling off platforms and being struck or run over by trains.	2	1	...	...
4. Whilst crossing the line at stations :				
(1) Where there is either a subway or footbridge	5	3	1	...
(2) Where there is neither a subway nor footbridge	5	...	...	...
5. By the closing of carriage doors ... ..	...	69	...	9
6. From falling out of carriages during the running of trains.	5	8	1	2
7. By other accidents ... ..	3	25	...	2
TOTAL OF PASSENGERS ... ..	29	398	7	28
<b>SERVANTS :—</b>				
By accidents occurring during shunting operations, viz :				
1. Whilst coupling or uncoupling vehicles ...	1	114	1	15
2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines.	...	4	...	1
3. While passing over, under, or standing on buffers.	...	3	1	4
4. When getting on or off, or falling off engines, waggons, &c.	1	42	...	5
5. Whilst braking, spragging, or chocking wheels	5	79	...	8
6. Whilst attending to ground-points ... ..	...	18	1	5
7. Whilst moving vehicles by capstans, turntables, props, levers, &c.	1	99	1	7
8. By other accidents not included in the preceding.	7	116	1	9
9. From falling off trains, engines, &c., in motion ...	...	8	1	5
10. When getting on or off engines, vans, &c., during the running of trains.	...	50	...	8
11. By coming in contact with over-bridges or erections on the sides of the line.	4	17	...	1
12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion.	1	79	...	7
13. Whilst working on the permanent-way, sidings, &c.	14	20	3	7
14. Whilst attending to gates at level crossings ...	1	...	...	...
15. Whilst walking, crossing, or standing on the line on duty :				
(1) At stations ... ..	18	50	4	6
(2) At other parts of the line ... ..	12	12	1	5
16. From being caught between vehicles ... ..	10	14	1	6
17. From falling or being caught between trains and platforms, walls, &c.	1	14	...	6
18. Whilst walking, &c., along the line to or from work	3	11	1	1
19. Miscellaneous ... ..	7	105	3	10
TOTAL OF SERVANTS ... ..	86	855	19	116
<b>OTHER PERSONS :—</b>				
1. Whilst passing over railways at level-crossings ...	9	1	...	1
2. Whilst trespassing on line ... ..	52	17	18	13
3. Suicides and attempted suicides ... ..	31	2	3	...
4. On business at stations and sidings ... ..	6	17	...	2
5. Miscellaneous (not included above) ... ..	3	9	1	4
TOTAL OF OTHER PERSONS ... ..	101	46	22	20
GRAND TOTAL ... ..	216	1,299	48	164

N.B.—The Board of Trade state the cause of the accident as returned by the Companies, but do not



## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE NO. 3.

reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED  
MOVEMENT of RAILWAY VEHICLES during the Three Months ending 31st MARCH, 1902.

IRELAND.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
...	2	7	19	<b>PASSENGERS :—</b>  1. From falling between trains and platforms : (1) When entering trains. (2) When alighting from trains. 2. From falling on to the platform, ballast, &c. : (1) When entering trains. (2) When alighting from trains. 3. From falling off platforms and being struck or run over by trains. 4. Whilst crossing the line at stations : (1) Where there is either a subway or footbridge. (2) Where there is neither a subway nor footbridge. 5. By the closing of carriage doors. 6. From falling out of carriages during the running of trains. 7. By other accidents.
...	...	6	23	
...	...	...	30	
1	...	2	237	
...	...	2	1	
...	...	6	3	
...	1	5	1	
...	...	...	78	
...	...	6	10	
...	...	3	27	
1	3	37	429	<b>TOTAL OF PASSENGERS.</b>
2	4	4	133	<b>SERVANTS :—</b>  By accidents occurring during shunting operations, viz. : 1. Whilst coupling or uncoupling vehicles. 2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines. 3. While passing over, under, or standing on buffers. 4. When getting on or off, or falling off engines, waggon, &c. 5. Whilst braking, spragging, or chocking wheels. 6. Whilst attending to ground-points. 7. Whilst moving vehicles by capstans, turntables, props, levers, &c. 8. By other accidents not included in the preceding. 9. From falling off trains, engines, &c., in motion. 10. When getting on or off engines, vans, &c., during the running of trains. 11. By coming in contact with over-bridges or erections on the sides of the line. 12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion. 13. Whilst working on the permanent-way, sidings, &c. 14. Whilst attending to gates at level-crossings. 15. Whilst walking, crossing, or standing on the line on duty : (1) At stations. (2) At other parts of the line. 16. From being caught between vehicles. 17. From falling or being caught between trains and platforms, walls, &c. 18. Whilst walking, &c., along the line to or from work 19. Miscellaneous.
...	...	...	5	
...	...	1	7	
...	...	1	47	
...	1	5	88	
...	1	1	24	
...	7	2	113	
1	3	9	128	
...	...	1	13	
...	2	...	60	
...	2	4	20	
...	...	1	86	
...	...	17	27	
...	...	1	...	
...	1	23	57	
...	...	13	17	
...	...	11	20	
...	...	1	20	
...	...	4	12	
1	1	11	116	
5	22	110	993	<b>TOTAL OF SERVANTS.</b>
2	...	11	2	<b>OTHER PERSONS :—</b>  1. Whilst passing over railways at level-crossings. 2. Whilst trespassing on line. 3. Suicides and attempted suicides. 4. On business at stations and sidings. 5. Miscellaneous (not included above).
4	1	74	31	
1	...	35	2	
...	...	6	19	
...	...	4	13	
7	1	130	67	<b>TOTAL OF OTHER PERSONS.</b>
13	26	277	1,489	<b>GRAND TOTAL.</b>

guarantee or otherwise adopt the statement, except in cases where an official inquiry has been held.

TABLE No. 4.

NUMBER of PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the

NAME OF COMPANY.	1		2		3		4		5				6		7		8	
	Collisions between Passenger Trains or Parts of Passenger Trains.		Collisions between Passenger Trains and Goods or Mineral Trains, Light-Engines, &c.		Collisions between Goods Trains or Parts of Goods Trains, Light-Engines, &c.		Collisions between Trains and Vehicles standing foul of the Line.		Collisions between Trains and Buffer-Stops, or Vehicles at rest.				Trains coming in Contact with Projections from other Trains running on Parallel Lines.		Passenger Trains or Parts of Passenger Trains leaving the Rails.		Goods Trains or Parts of Goods Trains, Light-Engines, &c. leaving the Rails.	
	K.*	L.†	K.	L.	K.	L.	K.	L.	(a.) From Trains running into Stations at too high a speed.		(b.) From other Causes.		K.	L.	K.	L.	K.	L.
ENGLAND AND WALES.																		
Great Eastern ... ..	...	...	...	7	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Great Northern ... ..	...	5	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Great Western ... ..	...	...	...	12	...	...	...	...	...	3	...	...	...	...	...	...	...	...
Lancashire and Yorkshire...	...	4	...	...	...	...	...	4	...	3	...	2	...	...	...	...	...	...
London and North-Western	...	...	...	4	...	1	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
London, Brighton, and South Coast.	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...
Midland ... ..	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
North-Eastern ... ..	...	...	...	1	...	3	...	...	...	1	...	...	...	...	...	1	...	...
Sheffield and Midland Joint	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South-Eastern and Chatham	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES ...	...	10	...	28	...	7	...	4	...	11	...	3	...	...	...	1	...	...
SCOTLAND.																		
Caledonian ... ..	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	1
Dundee and Abroath Joint	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North British ... ..	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	...	...	...	2	...	2	...	1	...	...	...	1	...	...	...	...	...	1
IRELAND.																		
Belfast and County Down	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...
Great Southern and Western	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, IRELAND ...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...
TOTAL, UNITED KINGDOM ...	...	10	...	30	...	9	...	5	...	14	...	4	...	...	...	1	...	1

NOTE.—In the above Table the persons killed and injured from accidents are entered against the Company on whose  
 \* Killed.  
 † Injured.

## INJURED IN ACCIDENTS TO TRAINS.

TABLE No. 4.

INJURED in the different CLASSES of ACCIDENTS occurring on the LINES of the several RAILWAY COMPANIES during the Three Months ending 31st March 1902.

9 Trains running through Gates at Level Crossings or into other Obstacles.		10 The bursting of Boilers or Tubes, &c., of Engines.		11 Accidents arising from the Failure of Rolling-Stock (including Failure of Wheels, Tyres, Axles, &c.).		12 Accidents arising from the Failure of Permanent-Way (including Failure of Tunnels, Bridges, Rails, &c.).		13 Fires in Trains.		14 Other Accidents.		Total Number of Persons of all Classes.		Number of Passengers and others.		Number of Servants.		NAME OF COMPANY.
K.*	L.†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	
ENGLAND AND WALES.																		
...	...	...	...	...	...	...	...	...	...	...	...	8	...	5	...	3	...	Great Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	7	...	5	...	2	...	Great Northern.
...	1	...	...	...	...	...	...	...	...	...	...	16	...	12	...	4	...	Great Western.
...	...	...	...	...	3	...	...	...	...	...	...	16	...	11	...	5	...	Lancashire and Yorkshire.
...	...	...	...	...	...	...	...	...	...	...	...	5	...	3	...	2	...	London and North-Western.
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	London and South-Western.
...	...	...	...	...	1	...	...	...	...	...	...	3	...	1	...	2	...	London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	Metropolitan District.
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	Midland.
...	...	...	...	...	...	...	...	...	...	...	...	6	...	3	...	3	...	North-Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...	...	...	Sheffield and Midland Joint.
...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	South-Eastern and Chatham.
...	1	...	...	...	4	...	...	...	...	...	...	69	...	46	...	23	...	{ TOTAL, ENGLAND AND WALES.
SCOTLAND.																		
...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	3	...	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	Dundee and Abreath Joint.
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	Glasgow and South-Western.
...	...	...	...	...	...	...	...	...	...	6	...	8	...	7	...	1	...	North British.
...	...	...	...	...	...	...	...	...	...	6	...	13	...	7	...	6	...	TOTAL, SCOTLAND.
IRELAND.																		
...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...	...	...	Belfast and County Down.
...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	1	...	Great Southern and Western.
...	...	...	...	...	1	...	...	...	...	...	...	4	...	3	...	1	...	TOTAL, IRELAND.
...	1	...	...	...	5	...	...	...	...	6	...	86	...	56	...	30	...	TOTAL, UNITED KINGDOM.

lines the accidents occurred, except in cases of injuries arising from the accidents enumerated in Columns Nos. 10 and 11

\* Killed

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Three Months

## A. PASSENGERS

NAME OF COMPANY.]	1				2				3		4				5		6				7		Total.	
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.		Whilst crossing the line at Stations.				By the closing of Carriage Doors.		From falling out of Carriages during the running of Trains.				By other Accidents			
	(a)		(b)		(a)		(b)				(a)		(b)											
	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.		
ENGLAND AND WALES.																								
Furness	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	2		
Great Central	...	...	2	...	...	...	1	...	...	...	...	1	...	...	2	...	...	...	...	...	1	5		
Great Eastern	...	...	5	...	...	6	20	1	1	2	...	...	...	...	5	...	1	...	3	3	41			
Great Northern	...	...	1	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4		
Great Western	...	...	1	...	1	...	11	...	...	...	...	1	...	...	4	...	1	...	1	1	20			
Lancashire and Yorkshire	...	...	...	...	...	...	5	...	...	...	...	...	...	...	5	...	...	...	1	...	11			
Lancashire and Yorkshire and London and North-Western Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	2			
London and North-Western	...	1	1	3	...	3	33	...	...	2	...	1	...	...	21	...	...	...	5	4	66			
London and North-Western and Great Western Joint.	...	...	...	...	...	...	6	...	...	...	...	...	...	...	3	1	...	...	1	1	10			
London and South Western	...	...	1	2	...	3	47	1	...	...	...	1	...	...	2	...	1	...	3	3	58			
London and South-Western and London, Brighton and South Coast Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...			
London, Brighton, and South Coast.	...	...	1	1	...	...	9	...	...	...	...	...	...	...	1	2	...	...	2	4	13			
London, Tilbury, and South-end.	1	...	...	...	...	1	9	...	...	...	...	...	...	...	...	...	...	...	...	1	10			
Metropolitan	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1	1	3			
Metropolitan and Great Western Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1			
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2			
Metropolitan District	...	1	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	1	3			
Midland	...	1	1	2	...	3	14	...	...	...	...	...	...	...	5	...	1	...	3	1	29			
North-Eastern	...	...	2	4	...	2	22	...	...	...	3	...	...	...	8	1	1	1	2	2	44			
North-Eastern and London and North-Western Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1			

\* Killed.

NOTE.—In the above Table the persons killed and injured  
† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st March, 1902.

## A. PASSENGERS.

NAME OF COMPANY.	1 From falling between Trains and Platforms.				2 From falling on to the Platform, Ballast, &c.				3 From falling off Platforms and being struck or run over by Trains.		4 Whilst crossing the Line at Stations.				5 By the closing of Carriage Doors.		6 From falling out of Carriages during the running of Trains.		7 By other Accidents		Total.	
	(a) When entering Trains.		(b) When alighting from Trains.		(a) When entering Trains.		(b) When alighting from Trains.				(a) Where there is either a Subway or Foot- bridge.		(b) Where there is neither a Subway nor Foot- bridge.									
	K.*	L†	K.	L.	K.	L.	K.	L.			K.	L.	K.	L.								
ENGLAND AND WALES— cont.																						
North London ... ..	...	...	...	2	...	8	...	12	...	...	1	...	...	...	4	...	...	...	1	1	27	
North Wales and Liverpool	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	
South-Eastern and Chatham	...	1	1	3	...	1	...	23	...	...	...	...	1	...	3	...	2	...	2	2	35	
South-Eastern and Chatham and London, Brighton, and South Coast Joint.	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	
South Shields, Marsden, and Whitburn.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	
Tottenham and Hampstead Joint.	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Waterloo and City ... ..	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
West London Extension ...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	2	...	...	...	...	...	5	
TOTAL, ENGLAND AND WALES ... ..	4	16	4	21	...	29	1	226	2	1	5	3	5	...	69	5	8	3	25	29	398	
SCOTLAND.																						
Caledonian ... ..	2	...	...	...	...	...	...	4	...	...	...	...	...	...	5	1	...	...	1	3	10	
Glasgow and Paisley Joint...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	3	
Glasgow and South-Western	...	...	2	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	2	
Highland ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	
North British ... ..	1	...	...	...	...	...	...	5	...	...	1	...	...	...	2	...	1	...	1	2	9	
TOTAL, SCOTLAND ...	3	1	2	2	...	1	...	11	...	...	1	...	...	...	9	1	2	...	2	7	28	
IRELAND.																						
Belfast and Northern Coun- ties.	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
Cork and Macroom Direct ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	
Great Southern and Western	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
TOTAL, IRELAND ...	...	2	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	3	
TOTAL, UNITED KINGDOM...	7	19	6	23	...	30	2	237	2	1	6	3	5	1	...	78	6	10	3	27	37	4

are entered against the Company on whose line the injury was received.

\* Killed

† Injured.

NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Three Months

B. SERVANTS of COMPANIES and CONTRACTORS.

NAME OF COMPANY	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
ENGLAND AND WALES.																				
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ...	...	1	...	...	...	1	...	1	...	1	...	...	...	...	...	1	...	...	...	...
Brecon and Merthyr ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Cambrian ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Carlisle Joint Station ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Central London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	...	2	...	...	...	...	...	...	1	1	...	...	...	1	...	1	...	...	...	...
East and West Yorkshire Union ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Great Central ...	...	3	...	...	...	...	...	2	...	4	...	2	...	1	...	3	...	...	...	4
Great Eastern ...	...	4	...	...	...	...	...	2	...	3	...	...	...	9	...	3	...	...	...	2
Great Northern ...	...	8	...	1	...	...	...	3	1	5	...	...	...	7	2	5	...	1	...	6
Great Northern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Great Western ...	...	12	...	...	...	...	...	4	...	8	...	2	...	7	...	13	...	1	...	9
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire ...	...	9	...	...	...	...	...	1	1	1	7	...	1	...	14	1	10	...	1	2
Lancashire and Yorkshire and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	1	...	...	...
Lancashire, Derbyshire and East Coast.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and North-Western ...	1	25	...	1	...	...	...	7	2	21	...	5	...	29	1	38	...	...	...	7

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued*.RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st March 1902—*continued*.

## B. SERVANTS of COMPANIES and CONTRACTORS.

11.		12.		13.		14.		15.				16.		17.		18.		19.		TOTAL.	
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous		TOTAL.	
								(a.) At Stations.		(b.) At other Parts of the Line.											
K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	8
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	2	1	...	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	1	...	...	3
...	...	...	...	1	1	...	...	...	...	1	...	...	...	1	...	...	...	...	2	...	8
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	3
1	3	...	1	2	3	...	...	...	...	1	1	1	...	...	...	...	...	2	4	...	30
...	...	...	6	...	1	...	...	...	2	...	1	2	...	...	...	1	...	3	2	...	37
...	3	...	...	1	3	...	...	2	5	1	...	...	1	...	...	...	...	5	7	...	53
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
1	...	...	5	1	3	...	...	...	5	4	1	1	...	...	1	1	...	...	9	8	80
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
1	1	...	7	3	2	...	...	1	5	2	2	...	2	...	3	...	2	2	9	12	78
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2
...	1	1	25	...	3	...	...	7	15	1	3	1	6	...	1	1	1	1	24	16	212

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—*continued.*

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Three Months

B. SERVANTS of COMPANIES and CONTRACTORS—*continued.*

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.	10.
	1.	2.	3.	4.	5.	6.	7.	8.									By falling off Trains, Engines, &c., in Motion.	When getting on or off Engines, Vans, &c., during the running of Trains
	Whilst coupling or uncoupling Vehicles.	By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.	Whilst passing over, under, or standing upon Buffers.	When getting on or off, or falling off, Engines, Waggon, &c.	Whilst braking, spragging, or chocking Wheels.	Whilst attending to Ground Points.	Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.	By other Accidents not included in the preceding.										
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES— <i>cont.</i>																		
London and North-Western and Great Western Joint.	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...
London and North-Western and Midland Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western ...	...	7	...	...	...	1	...	3	...	4	...	...	...	2	...	3	...	1
London, Brighton, and South Coast	...	3	...	...	...	...	...	...	3	...	...	...	...	2	...	1	...	...
London, Tilbury, and Southend	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Metropolitan District ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland ...	...	17	...	...	...	...	5	...	6	...	3	...	14	1	17	...	2	...
Midland and Great Northern Joint	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...
Midland and Great Western Joint ...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland and Lancashire and Yorkshire Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Normanton Joint Station	...	...	...	...	...	...	...	...	...	...	...	...	3	...	1	...	...	...
North-Eastern ...	...	12	...	1	...	1	...	4	...	9	...	2	1	6	2	7	...	2
North London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
North Staffordshire ...	...	1	...	...	...	...	1	...	2	...	...	...	...	...	1	...	...	...
Port Talbot ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...
Rhondda and Swansea Bay ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Rhymney ...	...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...

\* Killed.

† Injured.



## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE NO. 5—*continued.*RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st March 1902—*continued.*B. SERVANTS of COMPANIES and CONTRACTORS—*continued.*

11.		12.		13.		14.		15.				16.		17.		18.		19.			
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.		TOTAL.	
								(a.)		(b.)											
At Stations.		At other Parts of the Line.																			
K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	3	1	...	...	...	...	1	...	...	1	...	...	1	...	...	1	3	3	32
...	...	...	...	2	1	...	...	2	5	...	...	2	...	...	1	...	...	1	6	6	18
...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	1	1	2
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	1	1	2
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	4	...
...	2	...	18	1	2	...	...	3	5	1	3	1	3	...	...	...	1	2	11	9	117
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...
...	2	...	7	1	...	...	...	1	5	...	...	...	...	...	1	...	2	1	13	6	78
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	4	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	1	1	1	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	1

\* Killed.

† Injured.

NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Three Months

B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	I†	K.	I	K.	I	K.	I	K.	I	K.	I	K.	I	K.	I	K.	I	K.	I
ENGLAND AND WALES—cont.																				
South-Eastern and Chatham...	...	3	...	...	...	...	...	2	...	1	...	1	...	...	...	...	...	...	...	3
Taff Vale	...	...	...	...	...	...	...	1	...	2	...	...	...	...	...	3	...	...	...	...
Tottenham and Hampstead Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES	1	114	...	4	...	3	1	42	5	79	...	18	1	99	7	116	...	8	...	50
SCOTLAND.																				
Caledonian	...	6	...	1	1	2	...	4	...	3	...	2	...	2	...	...	1	3	...	...
Dumbarton and Balloch Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dundee and Arbroath Joint	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Glasgow and South-Western	...	1	1	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...
Great North of Scotland	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Highland	...	1	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	1	...	2
North British	...	7	...	...	...	2	...	1	...	4	1	2	...	4	1	8	...	...	...	6
TOTAL, SCOTLAND	1	15	...	1	1	4	...	5	...	8	1	5	1	7	1	9	1	5	...	8
IRELAND.																				
Belfast and Northern Counties	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	...	...	...	...	1
Cavan and Leitrim	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clogher Valley	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Cork, Bandon and South Coast	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern	...	1	...	...	...	...	...	...	...	1	...	...	...	3	...	1	...	...	...	...
Great Southern and Western	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	1
Midland Great Western	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...
TOTAL IRELAND	2	4	...	...	...	...	...	...	...	1	...	1	...	7	1	3	...	...	...	2
TOTAL, UNITED KINGDOM	4	133	...	5	1	7	1	47	5	88	1	24	2	113	9	128	1	13	...	60

\* Killed. † Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—continued.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 31st March 1902—continued.

## B. SERVANTS of COMPANIES and CONTRACTORS—continued.

11.		12.		13.		14.		15.				16.		17.		18.		19.			
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.		TOTAL.	
								(a.) At Stations.		(b.) At other Parts of the Line.											
K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
1	2	...	2	1	1	1	...	...	1	1	...	1	...	1	3	...	1	...	7	6	27
...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	11
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
4	17	1	79	14	20	1	...	18	50	12	12	10	14	1	14	3	11	7	105	86	855
...	1	...	1	...	4	...	...	...	3	...	3	...	1	...	1	...	1	1	5	3	43
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	2	...	...	...	...	1	...	...	...	...	...	1	3	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	8
...	...	...	5	3	3	...	...	1	2	1	2	1	4	...	3	1	...	2	4	11	57
...	1	...	7	3	7	...	...	4	6	1	5	1	6	...	6	1	1	3	10	19	116
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	2	...	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
...	2	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	1	1	5	22
4	20	1	86	17	27	1	...	23	57	13	17	11	20	1	20	4	12	11	116	110	993

\* Killed.

† Injured.

**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE No. 5—continued.**

NUMBER OF PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Three Months ending 31st March 1902—continued.

**C. OTHER PERSONS.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres- passers.		Suicides and attempted Suicides.		Persons on Business at Stations and Sidings.		Miscel- laneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES.																		
Cambrian ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Central London ... ..	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	2	...
Cheshire Lines .. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
Furness ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Great Central ... ..	...	...	...	...	...	...	...	...	3	3	...	...	...	2	...	1	3	6
Great Eastern ... ..	...	...	1	...	...	...	1	...	3	...	4	1	2	...	...	...	10	1
Great Northern ... ..	...	...	...	...	...	...	...	...	3	1	1	...	...	...	...	...	4	1
Great Western ... ..	...	...	3	...	1	...	4	...	10	2	3	...	2	1	...	2	19	5
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Lancashire and Yorkshire	...	...	1	...	...	...	1	...	4	...	...	...	...	2	...	1	5	3
London and North-Western	...	...	...	...	...	...	...	...	9	2	3	...	1	5	...	1	13	8
London and South-Western	...	...	...	...	...	...	...	...	2	1	6	...	...	...	1	1	9	2
London and South-Western and London, Brighton, and South Coast Joint.	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
London, Brighton, and South Coast.	...	...	...	...	...	...	...	...	1	1	4	1	...	2	...	...	5	4
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Midland ... ..	...	...	...	...	...	...	...	...	5	...	2	...	...	2	1	...	8	2
Midland and Great Western Joint.	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	2	1
North-Eastern ... ..	2	...	...	...	...	...	2	...	8	4	1	...	...	1	...	1	11	6
North London ... ..	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	2	...
North Staffordshire ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Rhymney and Great West- ern Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...

\* Killed.

† Injured.

NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Three Months ending 31st March 1902—continued.

C. OTHER PERSONS—continued.

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres- passers.		Suicides and attempted Suicides.		Persons on Business at Sidings and Stations.		Miscel- laneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES—cont.																		
South-Eastern and Chatham.	1	...	...	...	...	...	1	...	...	...	2	...	1	1	...	1	4	2
Taff Vale ... ..	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1
TOTAL, ENGLAND AND WALES ... ..	3	...	5	1	1	...	9	1	52	17	31	2	6	17	3	9	101	46
SCOTLAND.																		
Caledonian ... ..	...	...	...	...	...	...	...	...	7	8	1	...	...	1	1	1	9	10
Dundee and Arbroath Joint	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Glasgow and South-Western	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Great North of Scotland ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Highland ... ..	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	1
North British ... ..	...	...	...	...	...	...	...	...	9	4	1	...	...	1	...	3	10	8
TOTAL, SCOTLAND ...	...	...	...	1	...	...	...	1	18	13	3	...	...	2	1	4	23	20
IRELAND.																		
Great Northern ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Great Southern and Western	...	...	1	...	...	...	1	...	1	1	...	...	...	...	...	...	2	1
Londonderry and Lough Swilly.	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	2	...
Midland Great Western ...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2	...
TOTAL, IRELAND ...	1	...	1	...	...	...	2	...	4	1	1	...	...	...	...	...	7	1
TOTAL, UNITED KING- DOM ... ..	4	...	6	2	1	...	11	2	74	31	35	2	6	19	4	13	130	67

NATURE OF INJURIES TO PERSONS FROM ACCIDENTS TO TRAINS AND FROM THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 6.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES during the Three Months ending 31st March 1902, classified according to the NATURE of the INJURIES ; with corresponding figures for March Quarter 1901.

		NATURE OF INJURIES.															Total Injured.		
		Fatal.	Injuries resulting in Loss of			Fractures of				Dis-locations.	Internal In-juries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.		Shock to Sys-tem.	Mis-cellaneous In-juries.
			Legs or Feet.	Arms or Hands.	Fin-gers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.						
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	
Passengers :																			
1902	... ..	37	4	...	...	...	6	2	1	5	4	46	97	...	15	82	51	172	485
1901	... ..	38	3	...	...	...	8	6	3	3	5	34	89	1	7	73	64	147	443
Servants of the Companies and Contractors :																			
1902	... ..	110	18	3	2	3	23	28	4	4	12	139	269	19	123	95	11	270	1,023
1901	... ..	115	21	6	10	4	45	24	9	12	26	108	275	29	150	102	7	322	1,150
(For details, see Table No. 7.)																			
Other Persons :																			
Persons having business at stations	1902	6	1	...	...	...	2	1	...	1	1	3	4	...	...	2	1	3	19
	1901	6	...	2	...	...	1	1	...	...	...	4	10	...	1	4	1	12	36
Trespassers	1902	74	3	4	...	...	4	1	...	...	2	5	3	...	...	4	...	5	31
	1901	86	4	2	1	...	...	...	...	...	...	4	1	...	...	5	...	10	27
Others	1902	50	2	2	...	...	3	...	...	...	...	1	4	...	...	1	...	4	17
	1901	51	...	...	...	...	...	...	1	...	...	...	1	...	1	1	...	9	13
(Including accidents at level crossings, suicides, and accidents to other persons not coming in any of the above classifications)																			
TOTAL	1902	277	28	9	2	3	38	32	5	10	19	194	377	19	138	184	63	454	1,575
	1901	296	28	10	11	4	54	31	13	15	31	150	376	30	159	185	72	500	1,669

**NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES KILLED OR INJURED IN ACCIDENTS TO TRAINS, AND BY THE MOVEMENT OF RAILWAY VEHICLES.**

TABLE NO. 7.

STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Three Months ending 31st March, 1902, classified according to the NATURE of the EMPLOYMENT and AGE of the persons injured, and the NATURE of the INJURIES; and also the total number of Persons employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	Number of Persons Employed in 1901.
	Fatal.	Injuries resulting in loss of			Fractures of				Dislocations.	Internal Injuries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shocks to System.	Miscellaneous Injuries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
1. Brakemen. (See Goods Guards.)																			
2. Capstanmen and Capstan-lads: (1) Men	...	...	...	...	...	...	...	...	...	1	4	7	...	1	4	...	7	24	1,052
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	1	2	6	304
3. Carmen and Van-guards: (1) Men	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	16,819
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6,711
4. Carriage Cleaners: (1) Men	2	...	...	...	...	1	1	...	...	...	1	...	...	...	1	...	...	4	5,084
(2) Boys	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	297
5. Carriage and Waggon Examiners.	4	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	1	3	3,454
6. Checkers: (1) Men	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	7,792
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	179
7. Chockers, Chain-boys, and Slippers: (1) Men	...	...	...	...	...	...	...	1	...	...	1	2	...	1	...	...	1	6	96
(2) Boys	...	...	...	...	...	...	...	...	...	...	3	5	...	1	...	...	3	12	640
8. Clerks: (1) Men	...	2	...	...	...	...	...	...	...	...	1	...	...	1	...	...	1	5	48,245
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13,565
9. Engine Cleaners: (1) Men	2	...	1	1	...	1	...	1	...	1	3	7	2	...	...	...	5	22	15,250
(2) Boys	...	...	...	...	...	...	...	...	1	...	...	2	...	...	...	...	1	4	3,993
10. Engine Drivers	3	...	...	...	...	1	1	...	...	...	17	15	7	13	8	2	20	85	25,556
11. Firemen	5	2	...	...	1	1	2	2	...	1	8	25	6	8	18	1	35	110	24,083
12. Gatekeepers	1	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	2	3,507
13. Greasers: (1) Men	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	3	964
(2) Boys	...	1	...	...	...	...	...	...	...	...	...	1	...	...	1	...	1	4	841
14. Guards (Goods) and Brakemen.	10	2	...	...	...	3	3	...	1	2	31	73	...	37	26	2	64	244	15,708
15. Guards, Passenger	...	...	...	...	1	2	2	...	1	...	6	6	...	8	6	2	4	38	7,291
16. Horse Drivers	1	...	...	...	...	...	2	...	...	...	1	11	...	4	...	...	8	26	2,372
17. Inspectors: (1) Permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,071
(2) Others	1	2	...	...	...	...	...	...	...	...	...	2	...	2	...	...	3	9	5,701
18. Labourers: (1) Men	10	1	1	...	...	...	2	...	...	...	4	6	...	2	...	1	9	28	52,383
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	899
19. Lampmen and Lamp-lads: (1) Men	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	4	1,813
(2) Boys	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	472
20. Loaders and Sheeters	2	...	...	...	...	1	...	...	...	1	4	1	...	...	...	...	3	10	4,430
21. Mechanics: (1) Men	3	2	...	...	...	...	1	...	...	...	2	1	...	...	1	...	2	9	70,322
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10,518
22. Messengers: (1) Men	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	652
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,642
23. Number Takers: (1) Men	...	...	...	...	...	...	...	...	...	...	1	2	...	1	...	...	...	4	823
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	745
24. Permanent-way Men	21	1	...	...	...	4	4	...	...	...	6	3	...	...	4	...	11	33	66,621
25. Pointsmen	...	...	...	...	...	...	...	...	...	...	1	1	...	...	1	...	3	6	773
26. Policemen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,998
27. Porters: (1) Men	12	1	...	...	1	4	3	...	...	4	17	42	2	3	9	...	31	117	50,134
(2) Boys	2	...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	...	3	5,142
28. Shunters	14	3	1	...	...	1	3	...	1	1	16	36	2	35	7	1	40	147	10,841
29. Signal Fitters and Telegraph Wiremen.	1	...	...	...	...	...	...	...	...	...	2	...	...	...	1	...	...	3	3,843
30. Signalmen	1	...	...	...	...	...	...	...	...	...	2	4	...	1	...	...	3	10	27,723
31. Signal Box Lads	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,079
32. Station Masters	...	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	2	8,103
33. Ticket Collectors and Examiners.	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	...	...	2	3,642
34. Watchmen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	993
35. Yardsmen	1	...	...	...	...	1	...	...	...	...	2	1	...	1	1	...	3	9	1,717
36. Miscellaneous: (1) Adults	5	...	...	...	...	...	...	...	...	...	4	6	...	1	4	...	4	19	32,723
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	2,828
Total of Railway Servants.	108	18	3	2	3	22	28	4	4	12	138	268	19	123	95	11	269	1,019	575,834
37. Contractors' Servants: (1) Men	2	...	...	...	...	1	...	...	...	...	1	1	...	...	...	...	1	4	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total of Contractors' Servants.	2	...	...	...	...	1	...	...	...	...	1	1	...	...	...	...	1	4	
Total of Railway and Contractors' Servants.	110	18	3	2	3	23	28	4	4	12	139	269	19	123	95	11	270	1,023	

## NUMBER OF PERSONS KILLED OR INJURED ON RAILWAY PREMISES OTHERWISE

TABLE No. 8.

SUMMARY STATEMENT OF THE NUMBER of PASSENGERS, SERVANTS of the COMPANIES and KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS COMPANIES in the Three Months ending 31st MARCH 1902, with corresponding figures for the

	1902.					
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>						
a. Whilst ascending or descending steps at stations	1	80	...	2	...	...
b. By being struck by barrows, by falling over packages, &c., on station platforms.	...	20	...	...	...	...
c. From falling off platforms on to the ballast ...	1	29	...	...	...	...
d. By other accidents ... ..	1	29	...	2	...	...
<b>TOTAL OF PASSENGERS ... ..</b>	<b>3</b>	<b>158</b>	<b>...</b>	<b>4</b>	<b>...</b>	<b>...</b>
<b>SERVANTS :—</b>						
1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes.	2	367	...	27	...	5
2. Whilst moving goods and luggage in stations or sheds.	...	155	...	8	...	2
3. Whilst working at cranes or capstans ... ..	...	50	...	2	...	2
4. By the falling of waggon-doors, lamps, bales of goods, &c.	...	97	...	5	...	1
5. Whilst attending to engines at rest ... ..	...	330	...	17	...	11
6. From falling off, or when getting on or off engines or vehicles at rest.	1	246	...	17	...	3
7. From falling off, or when getting on or off platforms.	...	63	...	3	...	...
8. From falling off ladders, scaffolds, &c. ... ..	1	66	...	6	...	2
9. By stumbling whilst walking on the line ...	1	195	...	6	...	3
10. By being trampled on or kicked by horses whilst engaged in railway work.	...	14	...	1	...	...
11. From being struck by articles thrown from passing trains.	...	1	...	...	...	...
12. From the falling of rails, sleepers, &c., when at work on the line.	...	133	...	7	...	5
13. Otherwise injured when at work on the line or in sidings.	...	256	2	6	...	12
14. Miscellaneous ... ..	2	515	...	20	...	2
<b>TOTAL OF SERVANTS ... ..</b>	<b>7</b>	<b>2,488</b>	<b>2</b>	<b>125</b>	<b>...</b>	<b>48</b>
<b>OTHER PERSONS :—</b>						
On business at stations and sidings ... ..	2	78	...	4	...	2
Miscellaneous ... ..	2	20	1	4	...	...
<b>TOTAL OF OTHER PERSONS ... ..</b>	<b>4</b>	<b>98</b>	<b>1</b>	<b>8</b>	<b>...</b>	<b>2</b>
<b>GRAND TOTAL ... ..</b>	<b>14</b>	<b>2,744</b>	<b>3</b>	<b>137</b>	<b>...</b>	<b>50</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, sidings, goods yards, and all other premises warehousing goods, repairing sheds,



THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 8.

of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE as having been to TRAINS or by the MOVEMENT OF RAILWAY VEHICLES, on the PREMISES\* of the RAILWAY UNITED KINGDOM for March Quarter 1901.

1902.		1901.		
UNITED KINGDOM.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
1	82	4	76	PASSENGERS :—  a. Whilst ascending or descending steps at stations. b. By being struck by barrows, by falling over packages, &c., on station platforms. c. From falling off platforms on to the ballast. d. By other accidents.
...	20	...	20	
1	29	...	26	
1	31	1	38	
3	162	5	160	TOTAL OF PASSENGERS.
2	399	3	591	SERVANTS :—  1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes. 2. Whilst moving goods and luggage in stations or sheds. 3. Whilst working at cranes or capstans. 4. By the falling of waggon-doors, lamps, bales of goods, &c. 5. Whilst attending to engines at rest. 6. From falling off, or when getting on or off engines or vehicles at rest. 7. From falling off, or when getting on or off platforms. 8. From falling off ladders, scaffolds, &c. 9. By stumbling whilst walking on the line. 10. By being trampled on or kicked by horses whilst engaged in railway work. 11. From being struck by articles thrown from passing trains. 12. From the falling of rails, sleepers, &c., when at work on the line. 13. Otherwise injured when at work on the line or in sidings. 14. Miscellaneous.
...	165	...	143	
...	54	1	44	
...	103	...	153	
...	358	...	409	
1	266	...	220	
...	66	...	71	
1	74	2	88	
1	204	...	215	
...	15	...	15	
...	1	...	2	
...	145	1	144	
2	274	...	236	
2	537	2	420	
9	2,661	9	2,751	TOTAL OF SERVANTS.
2	84	5	76	OTHER PERSONS :—  On business at stations and sidings.  Miscellaneous.
3	24	4	23	
5	108	9	99	TOTAL OF OTHER PERSONS.
17	2,931	25	3,010	GRAND TOTAL.

used for the purpose of working the railway, but does not include factories, workshops, buildings used exclusively for stables, hotels, and other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Whilst loading, unloading, or sheeting Waggon.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst working at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off, or when getting on or off Platforms.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
<b>ENGLAND AND WALES.</b>														
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ... ..	...	3	...	...	...	...	...	...	...	...	...	...	...	...
Cambrian ... ..	...	...	...	...	...	1	...	2	...	...	...	1	...	...
Central London ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	...	3	...	...	...	...	...	...	...	...	...	...	...	...
City and South London ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cockermouth, Keswick, and Pen-rith.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ... ..	...	2	...	1	...	1	...	...	...	...	...	1	...	...
Great Central .. ..	...	11	...	8	...	2	...	2	...	1	...	5	...	1
Great Eastern ... ..	...	35	...	12	...	1	...	4	...	20	...	14	...	6
Great Northern ... ..	...	12	...	38	...	3	...	14	...	4	...	15	...	3
Great Western ... ..	...	38	...	4	...	2	...	7	...	37	...	27	...	11
Hull, Barnsley, and West Riding Junction.	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Lambourne Valley... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire: ...	1	60	...	21	...	8	...	6	...	57	...	23	...	2
Lancashire and Yorkshire and London and North-Western Joint.	...	1	...	...	...	1	...	3	...	...	...	...	...	...
Lancashire, Derbyshire and East Coast.	...	...	...	...	...	...	...	...	...	2	...	...	...	1
London and North-Western ...	...	99	...	22	...	10	...	20	...	115	1	55	...	13
London and North-Western and Great Western Joint.	...	4	...	...	...	...	...	...	...	...	...	1	...	...
London and North-Western and Midland Joint.	...	...	...	2	...	...	...	...	...	...	...	...	...	...
London and South-Western ...	...	8	...	8	...	3	...	9	...	8	...	8	...	1
London, Brighton, and South Coast.	1	7	...	...	...	1	...	2	...	4	...	3	...	...
London, Tilbury and Southend ...	...	...	...	1	...	...	...	...	...	...	...	1	...	...

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Three Months ending 31st March 1902.

8		9		10		11		12		13		14				NAME OF COMPANY.
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscellaneous.		Total.		
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
																ENGLAND AND WALES
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Alexandra (Newport) Dock.
...	...	...	1	...	...	...	...	...	1	...	2	...	2	...	9	Barry.
...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	7	Cambrian.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	Central London.
...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	5	Cheshire Lines.
...	1	...	...	...	...	...	...	...	...	...	...	1	...	1	1	City and South London.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Cookermouth, Keswick, and Penrith.
...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	8	Furness.
...	4	...	4	...	1	...	...	...	1	...	2	...	8	...	50	Great Central.
...	3	...	18	...	2	...	...	...	13	...	38	...	49	...	215	Great Eastern.
...	1	...	8	...	...	...	...	...	9	...	11	1	54	1	172	Great Northern.
...	10	...	17	...	...	...	...	...	17	...	30	...	46	...	246	Great Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Hull, Barnsley, and West Riding Junction.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Lambourne Valley.
...	6	...	10	...	...	...	...	...	3	...	8	...	83	1	237	Lancashire and Yorkshire.
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	6	Lancashire and Yorkshire and London and North-Western Joint.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	4	Lancashire, Derbyshire and East Coast.
...	15	...	51	...	...	...	...	...	39	...	76	...	124	1	639	London and North-Western.
...	2	...	3	...	...	...	...	...	5	...	5	...	4	...	24	London and North-Western and Great Western Joint.
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	4	London and North-Western and Midland Joint.
...	3	...	5	...	...	...	...	...	3	...	10	...	12	...	78	London and South-Western.
1	1	...	1	...	...	...	1	...	3	...	2	...	2	2	27	London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3	London, Tilbury and Southend.

\* purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—continued.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY	1		2		3		4		5		6		7	
	Whilst loading, unloading, or sheeting Waggons.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst working at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off, or when getting on or off Platforms.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
ENGLAND AND WALES—cont.														
Mersey ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Metropolitan and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ... ..	...	...	...	1	...	1	...	...	...	...	...	...	...	...
Midland ... ..	...	43	...	23	...	10	...	17	...	32	...	48	...	12
Midland and Great Northern Joint.	...	5	...	...	...	...	...	1	...	2	...	1	...	...
Midland and Great Western Joint	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Midland and Lancashire and Yorkshire Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Neath and Brecon ... ..	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Normanton Joint Station	...	...	...	...	...	...	...	...	...	...	...	1	...	...
North-Eastern ... ..	...	18	...	9	...	3	...	6	...	25	...	24	...	4
North-Eastern and London and North-Western Joint.	...	...	...	...	...	...	...	1	...	...	...	...	...	...
North London ... ..	...	...	...	1	...	...	...	...	...	...	...	2	...	2
North Staffordshire ... ..	...	2	...	...	...	...	...	...	...	...	...	2	...	...
Nottingham Joint Station	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Otley and Ilkley Joint ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Rhondda and Swansea Bay ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Severn and Wye Joint ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Sheffield and Midland Joint ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint ... ..	...	1	...	...	...	...	...	...	...	1	...	...	...	...
South-Eastern and Chatham ... ..	...	5	...	1	...	2	...	...	...	5	...	5	...	4
Stalybridge Joint Station...	...	...	...	...	...	1	...	...	...	...	...	...	...	...

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Three Months ending 31st March 1902.

8		9		10		11		12		13		14				
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscellaneous.		Total.		NAME OF COMPANY.
Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	
ENGLAND AND WALES— cont.																
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Mersey.
...	1	...	2	...	...	...	...	...	1	...	...	...	2	...	8	Metropolitan.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Metropolitan and Great Western Joint.
...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	4	Metropolitan District.
...	8	...	31	...	8	...	...	...	12	...	31	...	92	...	367	Midland.
...	...	...	1	...	...	...	...	...	1	...	...	...	2	...	13	Midland and Great Northern Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	5	Midland and Great Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Midland and Lancashire and Yorkshire Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Neath and Brecon.
...	...	...	1	...	2	...	...	...	...	...	...	...	2	...	6	Normanton Joint Station.
...	4	...	27	...	1	...	...	...	15	...	26	...	43	...	205	North-Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	North - Eastern and London and North-Western Joint.
...	...	...	2	...	...	...	...	...	1	...	2	...	1	...	11	North London.
...	...	...	1	...	...	...	...	...	...	...	2	...	6	...	13	North Staffordshire.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	3	Nottingham Joint Station.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Oldham, Ashton-under-Lyne, and Guide Bridge Junction.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Otley and Ilkley Joint.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Rhondda and Swansea Bay.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Severn and Wye Joint.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	2	Sheffield and Midland Joint.
...	1	...	1	...	...	...	...	...	1	...	2	...	1	...	8	Somerset and Dorset Joint.
...	3	1	6	...	...	...	...	...	1	...	2	...	9	1	43	South-Eastern and Chatham.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Stalybridge Joint Station.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—continued.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY  
otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1 Whilst loading, unloading, or sheeting Waggons.		2 Whilst moving Goods and Luggage in Stations or Sheds.		3 Whilst work- ing at Cranes or Capstans.		4 By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		5 Whilst attending to Engines at rest.		6 From falling off, or when getting on or off Engines or Vehicles at rest.		7 From falling off, or when getting on or off Platforms.	
	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.
<b>ENGLAND AND WALES—cont.</b>														
Taff Vale ... ..	...	4	...	1	...	...	...	2	...	15	...	7	...	1
Waterloo and City ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West London Extension Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay.	...	...	...	...	...	...	...	...	...	...	...	1	...	...
<b>TOTAL, ENGLAND AND WALES</b>	<b>2</b>	<b>367</b>	<b>...</b>	<b>155</b>	<b>...</b>	<b>50</b>	<b>...</b>	<b>97</b>	<b>...</b>	<b>330</b>	<b>1</b>	<b>246</b>	<b>...</b>	<b>63</b>
<b>SCOTLAND.</b>														
Caledonian ... ..	...	14	...	4	...	...	...	2	...	9	...	9	...	2
Dumbarton and Balloch Joint ...	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Glasgow and Paisley Joint ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western ...	...	3	...	...	...	...	...	...	...	...	...	...	...	...
Great North of Scotland ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Highland ... ..	...	1	...	...	...	...	...	...	...	1	...	1	...	...
North British ... ..	...	8	...	3	...	2	...	2	...	7	...	7	...	1
<b>TOTAL, SCOTLAND ..</b>	<b>...</b>	<b>27</b>	<b>...</b>	<b>8</b>	<b>...</b>	<b>2</b>	<b>...</b>	<b>5</b>	<b>...</b>	<b>17</b>	<b>...</b>	<b>17</b>	<b>...</b>	<b>3</b>
<b>IRELAND.</b>														
Belfast and County Down ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties ...	...	4	...	1	...	2	...	...	...	6	...	2	...	...
Cork, Bandon, and South Coast ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dublin, Wicklow and Wexford ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Great Northern ... ..	...	...	...	...	...	...	...	...	...	2	...	...	...	...
Great Southern and Western ...	...	1	...	...	...	...	...	1	...	2	...	...	...	...
Midland Great Western ... ..	...	...	...	1	...	...	...	...	...	...	...	1	...	...
<b>TOTAL, IRELAND ...</b>	<b>...</b>	<b>5</b>	<b>...</b>	<b>2</b>	<b>...</b>	<b>2</b>	<b>...</b>	<b>1</b>	<b>...</b>	<b>11</b>	<b>...</b>	<b>3</b>	<b>...</b>	<b>...</b>
<b>TOTAL, UNITED KINGDOM...</b>	<b>2</b>	<b>399</b>	<b>...</b>	<b>165</b>	<b>...</b>	<b>54</b>	<b>...</b>	<b>103</b>	<b>...</b>	<b>358</b>	<b>1</b>	<b>266</b>	<b>...</b>	<b>66</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE NO. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Three Months ending 31st March 1902.

8 From falling off Ladders, Scaffolds, &c.		9 By stumbling whilst walking on the Line.		10 By being trampled on and kicked by Horses whilst engaged in Railway Work.		11 By being struck by Articles thrown from passing Trains.		12 By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		13 Otherwise Injured when at work on the Line or in Sidings.		14 Miscel- laneous.		Total.		NAME OF COMPANY.
Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	
...	...	...	1	...	...	...	...	...	4	...	2	...	5	...	42	Taff Vale.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	Waterloo and City.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	West London Extension Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Wrexham, Mold, and Connah's Quay.
1	66	1	195	...	14	...	1	...	133	...	256	2	515	7	2,488	{ TOTAL, ENGLAND AND WALES.
SCOTLAND.																
...	3	...	3	...	1	...	...	...	2	...	2	...	9	...	60	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Dumbarton and Balloch Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Glasgow and Paisley Joint.
...	1	...	...	...	...	...	...	...	...	1	...	...	...	1	4	Glasgow and South- Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Great North of Scotland.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	4	Highland.
...	2	...	3	...	...	...	...	...	5	1	3	...	9	1	52	North British.
...	6	...	6	...	1	...	...	...	7	2	6	...	20	2	125	TOTAL, SCOTLAND.
IRELAND.																
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	Belfast and County Down.
...	1	...	1	...	...	...	...	...	2	...	4	...	...	...	23	Belfast and Northern Counties.
...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	2	Cork, Bandon, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Dublin, Wicklow and Wexford.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Great Northern.
...	1	...	1	...	...	...	...	...	2	...	7	...	1	...	16	Great Southern and Western.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	3	Midland Great Western.
...	2	...	3	...	...	...	...	...	5	...	12	...	2	...	48	TOTAL, IRELAND.
1	74	1	204	...	15	...	1	...	145	2	274	2	537	9	2,661	{ TOTAL, UNITED KING- DOM.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 10.

STATEMENT showing the number of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD OF TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES during the Three Months ending 31st March, 1902, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS injured and the NATURE of the INJURIES; and also the total number of PERSONS employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	No. of Persons employed in 1901.
	Fatal.	Injuries resulting in loss of			Fracture of				Dis-locations.	In-ternal In-juries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to System.	Miscellaneous In-juries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skulls.	Legs or Arms.	Collar-bones or ribs.	Other Bones.			Head or Body.	Limbs.							
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.			
1. Brakesmen. ( <i>See Goods Guards.</i> )																			
2. Capstan-men and Capstan-lads: (1) Men	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,052		
3. Carmen and Van-guarders: (1) Men	...	1	...	...	...	3	...	2	2	9	31	...	15	8	...	18	89		
(2) Boys	1	...	...	...	...	1	...	...	1	2	12	...	4	5	1	11	37		
4. Carriage-cleaners: (1) Men	...	...	...	...	...	1	...	...	1	5	4	1	5	4	1	11	33		
(2) Boys	...	...	...	...	...	...	...	...	...	...	1	1	...	1	...	1	4		
5. Carriage and wagon examiners.	...	...	...	...	...	1	...	...	1	1	4	...	3	...	...	4	14		
6. Checkers: (1) Men	...	...	...	...	...	1	...	2	1	4	10	...	9	5	1	20	53		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	179		
7. Chockers, Chain-boys, and Slip-pers: (1) Men	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1		
8. Clerks: (1) Men	...	...	...	...	...	...	...	...	...	...	...	1	6	...	...	4	11		
(2) Boys	...	...	...	...	...	2	...	...	...	1	...	...	1	...	...	...	4		
9. Engine-cleaners: (1) Men	...	...	...	...	...	1	...	1	2	5	26	6	15	14	...	26	96		
(2) Boys	...	...	...	...	...	...	...	...	1	2	2	2	1	5	...	8	21		
10. Engine-drivers	...	...	...	...	...	3	6	2	1	14	25	9	33	20	...	58	171		
11. Firemen	...	...	...	...	...	2	1	...	1	5	11	52	13	33	21	...	68		
12. Gatekeepers	...	...	...	...	...	...	...	...	...	1	1	...	5	...	...	1	6		
13. Greasers: (1) Men	...	...	...	...	...	1	...	...	...	...	1	...	1	...	...	2	5		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2		
14. Guards (Goods) and Brakesmen.	...	...	...	...	...	1	...	...	2	5	15	1	34	10	...	24	92		
15. Guards (Passenger)	...	...	...	...	...	2	...	2	...	1	3	...	15	3	...	7	33		
16. Horse-drivers	...	...	...	...	...	...	...	...	...	1	6	...	3	...	...	2	12		
17. Inspectors: (1) Permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
(2) Others	...	...	...	...	...	...	...	...	1	...	1	...	3	...	...	1	6		
18. Labourers: (1) Men	1	...	...	...	1	8	5	4	3	4	12	93	4	33	27	102	2,366		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1		
19. Lamp-men and lamp-lads: (1) Men	...	...	...	...	...	2	...	...	1	2	3	1	5	3	...	11	28		
(2) Boys	...	...	...	...	...	...	...	...	2	...	2	1	...	1	...	1	8		
20. Loaders and Sheeters.	...	...	...	...	...	1	2	...	1	...	16	...	4	4	...	13	42		
21. Mechanics: (1) Men	1	...	1	...	...	7	...	2	5	7	20	2	13	7	...	38	102		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	5	6		
22. Messengers: (1) Men	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2		
23. Number-takers: (1) Men	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	2		
(2) Boys	...	...	...	...	...	...	...	...	...	1	1	...	1	...	...	1	4		
24. Permanent-way Men.	2	1	...	1	1	9	2	6	3	6	8	113	...	53	25	106	334		
25. Pointsmen	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	2		
26. Policemen	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	3	8		
27. Porters: (1) Men	1	...	...	1	...	5	6	4	4	11	40	179	5	110	52	182	601		
(2) Boys	...	...	...	...	...	...	...	...	1	...	5	...	5	2	...	3	16		
28. Shunters	...	...	...	...	...	1	...	...	1	1	2	7	...	19	4	11	46		
29. Signal fitters and Telegraph Wiremen.	...	...	...	1	...	...	...	...	...	...	4	...	1	...	...	7	13		
30. Signalmen	...	...	...	...	1	1	1	...	2	8	7	...	17	6	...	14	58		
31. Signal-box lads	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
32. Station-masters	...	...	...	...	...	...	...	...	...	1	1	...	2	1	...	4	9		
33. Ticket-collectors and Examiners.	...	...	...	...	...	...	...	...	...	3	1	...	1	...	...	2	7		
34. Watchmen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
35. Yardsmen	...	...	...	...	...	...	...	...	...	1	2	...	4	...	...	1	8		
36. Miscellaneous: (1) Adults	...	...	...	1	...	1	...	1	2	...	8	34	4	23	13	46	133		
(2) Boys	...	...	...	...	...	1	...	...	...	1	...	...	1	1	...	3	7		
Total of Railway Servants	7	2	1	4	3	55	23	18	28	47	159	682	51	485	246	5	824		
37. Contractors' Servants: (1) Men	2	...	...	...	...	4	...	...	1	...	1	10	...	2	4	...	28		
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Total of Contractors' Servants	2	...	...	...	...	4	...	...	1	...	1	10	...	2	4	...	28		
Total of Railway and Contractors' Servants	9	2	1	4	3	59	23	18	29	47	160	692	51	487	250	5	830		



## ACCIDENTS TO TRAINS, ROLLING STOCK AND PERMANENT WAY.

TABLE No. 11.

**SUMMARY STATEMENT** of the NUMBER of ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to the BOARD OF TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM during the Year ending 31st March 1902, classified according to the NATURE of the ACCIDENT; with corresponding figures for the UNITED KINGDOM for March Quarter 1901.

NATURE OF ACCIDENT.	1902.				1901.
	ENGLAND AND WALES.	SCOTLAND.	IRELAND.	UNITED KINGDOM.	UNITED KINGDOM.
<b>(A)—ACCIDENTS TO TRAINS:—</b>					
1. Collisions between passenger trains or parts of passenger trains.	4	1	...	5	10
2. Collisions between passenger trains and goods or mineral trains or light-engines.	9	3	...	12	15
3. Collisions between goods trains or parts of goods trains and light-engines.	6	2	...	8	17
4. Collisions between trains and vehicles standing foul of the line.	4	2	...	6	1
5. Collisions between trains and buffer-stops or vehicles standing against buffer-stops:—					
(a) From trains running into stations or sidings at too high a speed.	7	...	1	8	5
(b) From other causes ... ..	3	1	...	4	6
6. Trains coming in contact with projections from other trains running on parallel lines.	1	...	...	1	...
7. Passenger trains or parts of passenger trains leaving the rails.	9	...	2	11	13
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	...	1	...	1	6
9. Trains running through gates at level crossings or into other obstacles.	23	11	2	36	46
10. Fires in trains ... ..	1	...	...	1	4
11. Miscellaneous ... ..	1	1	...	2	...
<b>(B)—ACCIDENTS TO OR FAILURE OF ROLLING STOCK AND PERMANENT WAY:—</b>					
12. The bursting of boilers or tubes, &c., of engines...	...	...	...	...	2
13. The failure of machinery, springs, &c., of engines	1	...	1	2	2
14. The failure of tyres ... ..	64	3	1	68	48
15. " " " wheels... ..	1	...	...	1	...
16. " " " axles ... ..	33	11	...	44	43
17. " " " brake apparatus* ... ..	...	...	...	...	...
18. " " " couplings ... ..	7	...	...	7	4
19. " " " ropes used in working inclines ...	...	...	...	...	...
20. " " " tunnels, bridges, viaducts, culverts, &c.	1	...	...	1	...
21. Broken rails ... ..	83	11	7	101	111
22. The flooding of portions of permanent way of such a nature as to involve danger.	...	...	...	...	...
23. Slips in cuttings or embankments of such a nature as to involve danger.	3	1	...	4	5
24. Fires at stations or involving injury to bridges or viaducts.	3	...	...	3	1
25. Miscellaneous ... ..	1	...	...	1	...

\* A Return is published half-yearly setting out in detail all the cases in which brake apparatus has failed to act properly.

TABLE No. 12.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Three Months ending

NAME OF COMPANY.	A.										
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Bu Stops or Vehic standing again Buffer Stops (a.) From Trains running into Stations or Sidings at too high a speed. (b.) From Trains running into Stations or Sidings at too high a speed.				Collisions between Trains and Bu Stops or Vehic standing again Buffer Stops (a.) From Trains running into Stations or Sidings at too high a speed. (b.) From Trains running into Stations or Sidings at too high a speed.	Fires in Trains or Rolling Stock.	Miscellaneous.
<b>ENGLAND AND WALES.</b>											
Brecon and Merthyr ...	...	...	...	...	...	...	...	...	...	...	...
Cambrian ...	...	—	...	...	...	...	1	...	...	...	...
Central London ...	...	...	...	...	...	...	...	...	...	...	...
City and South London ...	...	...	...	...	...	...	...	...	...	1	...
Festiniog ...	...	...	...	...	...	...	...	...	...	...	...
Furness ...	...	...	...	...	...	...	...	...	1	...	...
Great Central ...	...	...	...	...	...	...	...	...	1	...	...
Great Eastern ...	...	1	...	...	1	...	...	...	3	...	...
Great Northern ...	1	...	2	...	...	...	1	...	2	...	...
Great Western ...	...	2	...	2	2	...	1	—	4	...	...
Hull, Barnsley, and West Riding Junction.	...	—	...	...	...	...	...	—	...	...	...
Lancashire and Yorkshire	2	...	...	1	1	...	...	...	1	...	...
Lancashire, Derbyshire and East Coast.	...	...	...	...	...	...	1	...	...	...	...
London and North-Western	...	2	1	...	...	...	...	...	...	...	...
London and North-Western and Great Western Joint.	...	...	...	...	...	...	1	...	...	...	...
London and South-Western	...	...	...	...	...	1	...	...	4	...	...
London, Brighton, and South Coast.	1	1	—	1	...	...	1	...	1	—	...
London, Tilbury and South-end.	...	...	...	...	...	...	...	...	...	...	...
Mersey ...	...	...	—	...	...	...	...	...	...	...	...
Metropolitan ...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	1	...	...	...	...
Metropolitan District ...	...	...	...	...	1	—	...	...	...	...	...
Midland ...	...	...	1	...	...	...	...	...	1	...	...
Midland and Great Northern Joint.	...	...	...	...	...	...	...	...	2	...	...
North-Eastern ...	...	1	2	...	1	...	2	...	...	...	...
North London ...	...	...	...	...	...	...	...	...	...	...	...
North Staffordshire ...	...	...	...	...	...	...	...	...	...	—	1
Rhymney ...	...	...	...	...	...	...	...	...	...	...	...
Sheffield and Midland Joint.	...	1	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint	...	...	...	...	...	...	...	...	1	...	...

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE No. 12.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 31st March 1902.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Cuttings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	2	...	...	...	...	...	...	1	...	...	...	...
...	...	1	...	1	...	...	...	...	2	...	...	...	...
...	...	...	...	1	...	...	...	...	2	...	2	1	...
...	...	...	...	...	...	1	...	1	5	...	...	...	...
...	...	...	...	2	...	...	...	...	10	...	...	...	...
...	...	...	1	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	2	...	...	5	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	10	...	11	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	2	...	...	...	...
...	...	2	...	2	...	1	...	...	8	...	...	...	...
...	...	...	...	2	...	1	...	...	...	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	6	...	...	...	...
...	...	...	...	1	...	...	...	...	2	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	1	...	2	...	...	...	...	5	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	4	...	4	...	...	...	...	20	...	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	1	...	1	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...

under B are entered against the Company to which the rolling-stock or permanent-way belongs

TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Three Months ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains	Miscellaneous.
ENGLAND AND WALES —cont.													
South-Eastern and Chatham.	...	1	...	...	1	...	...	1	...	2	...	...	...
Taff Vale ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES.	4	9	6	4	7	3	1	9	...	23	1	1	
SCOTLAND.													
Caledonian ... ..	...	1	1	...	...	1	...	...	1	5	...	...	...
Dundee and Arbroath Joint	...	...	...	1	...	...	...	...	...	...	...	...	...
Glasgow and South-Western.	1	1	...	...	...	...	...	...	...	1	...	...	...
Highland ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
North British ... ..	...	1	1	1	...	...	...	...	...	5	...	...	1
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	1	3	2	2	...	1	...	...	1	11	...	...	1
IRELAND.													
Belfast and County Down	...	...	...	...	1	...	...	1	...	...	...	...	...
Belfast and Northern Counties.	...	...	...	...	...	...	...	1	...	...	...	...	...
Cavan and Leitrim ...	...	...	...	...	...	...	...	...	...	1	...	...	...
Dublin, Wicklow and Wexford.	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Southern and Western.	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland and Great Western	...	...	...	...	...	...	...	...	...	...	...	...	...
West Clare ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...
TOTAL, IRELAND ...	...	...	...	...	1	...	...	2	...	2	...	...	...
TOTAL, UNITED KINGDOM	5	12	8	6	8	4	1	11	1	36	1	2	

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE NO. 12—continued.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 31st March 1902.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Outtings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	1	...	...	...	...	1	...	...	10	...	...	1	...
...	...	...	...	1	...	...	...	...	...	...	1	...	...
...	...	42	...	3	...	...	...	...	...	...	...	...	...
...	1	64	1	33	...	7	...	1	83	...	3	3	1
...	...	2	...	2	...	...	...	...	9	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	5	...	...	...	...	1	...	1	...	...
...	...	...	...	4	...	...	...	...	...	...	...	...	...
...	...	3	...	11	...	...	...	...	11	...	1	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	1	...	...	...	...	...	...	...	3	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	1	...	...	...	...	...	...	7	...	...	...	...
...	2	68	1	44	...	7	...	1	101	...	4	3	1

under B are entered against the Company to which the rolling-stock or permanent-way belongs.

Board of Trade,  
8th August, 1902.

FRANCIS J. S. HOPWOOD.



## APPENDIX A.

### REPORTS TO THE BOARD OF TRADE BY INSPECTING OFFICERS OF THE RAILWAY DEPARTMENT UPON CERTAIN ACCIDENTS WHICH HAVE BEEN INQUIRED INTO.

	Page.		Page.
<b>GREAT EASTERN :</b>		<b>LANCASHIRE AND YORKSHIRE—cont. :</b>	
Lieutenant-Colonel von Donop's report on the collision which occurred on the 8th February between a passenger train and two coal trucks near Saffron Walden.	45	Major Druitt's report on the collision which occurred on the 28th February between the rear vehicles and the front portion of a goods train in Millwood Tunnel, near Todmorden.	63
<b>GREAT WESTERN :</b>		<b>NORTH BRITISH :</b>	
Lieutenant-Colonel Yorke's report on the collision that occurred on the 17th February between a passenger train and a light engine at Stourbridge Junction.	49	Major Pringle's report on the collision which occurred on the 24th January between two brake vehicles and a passenger train near Cowlairs station.	69
<b>LANCASHIRE AND YORKSHIRE :</b>		<b>NORTH EASTERN :</b>	
Major Druitt's report on the collision which occurred on the 11th January between a passenger train and an empty waggon train at Pendleton New.	53	Lieutenant-Colonel von Donop's report on the collision which occurred on the 24th March between a passenger train and a light engine near Milford Junction.	73
Major Druitt's report on the collision which occurred on the 12th February between a passenger train and an empty carriage train at Bradford.	57		





## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
21st February, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 13th February, the result of my enquiry into the circumstances under which a collision occurred about 6.48 p.m. on the 8th February, between a passenger train and two coal trucks near Saffron Walden on the Great Eastern Railway.

In this case, when the 6.45 p.m. down passenger train from Audley End to Bartlow, consisting of an engine, tender, and three vehicles, had reached a point about three quarters of a mile distant from Saffron Walden Station, it came into collision with two coal trucks which had run away from that station during shunting operations.

One of the coal trucks was almost completely destroyed and the other was severely damaged.

The engine of the passenger train, which was running tender first, was not itself hurt, but its tender was severely damaged. The train parted behind the engine, and the breakage of the Westinghouse brake pipe promptly brought the vehicles of the train to rest, and they received only trifling damage. The driver, fireman, and guard were all badly injured, and four passengers have complained of personal injuries sustained.

The engine of the passenger train was a four-wheels-coupled tender engine, fitted with the Westinghouse automatic brake, working blocks on the four coupled wheels and on the four tender wheels, and with a hand brake working blocks on the tender wheels.

The train consisted of the following vehicles attached to the engine in the order given :—

							Wheels.
One third-class brake	...	...	...	...	...	...	6
One composite	...	...	...	...	...	...	6
One third-class carriage	...	...	...	...	...	...	6

The train was fitted with the Westinghouse automatic brake, working blocks on four of the wheels of each vehicle.

All brakes are reported as having been in good order.

Details of the damage to permanent way and rolling stock are given in the Appendix.

### *Description.*

Saffron Walden Station, near which this accident occurred, is a station on the single-line branch of the Great Eastern Railway between Audley End and Bartlow, the length of which between these two points is  $7\frac{1}{2}$  miles.

The single line runs through Saffron Walden Station in a direction which is almost exactly east and west, and down trains from Audley End to Bartlow, such as the one which was concerned in this accident, approach Saffron Walden Station from the westward.

The station has only one platform, viz., on the north side of the line, and the signal-box is on the same side close to the west end of the platform.

On the south side of the running line is a loop, with points at each end of the station connecting the loop with the running line. The points at the west end of the station are situated 50 yards west of the signal-box ; the exact position of those at the east end is immaterial.

On the south side of the loop again is a siding which extends some distance to the west of the station, and there is a cross-over road connecting the loop with this siding, the points on the loop being situated 20 yards to the east of the signal-box.

The following distances from the signal-box to the various points connected with this accident should be noted, the whole of them being to the west of the box :—

					Yards.
From the signal-box to points leading from main line to loop	...				50
Do.	down home signal	...	...	...	235
Do.	down distant signal	...	...	...	1,042
Do.	point of collision	...	...	...	1,190

The line from the west end of the station platform to a point 80 yards west of the signal-box is level, and then a gradient of 1 in 1,100, falling in the direction of Audley End, commences, which continues for 110 yards. At this point, viz., 190 yards west of the signal-box, a steeper falling gradient commences, which varies from 1 in 199 to 1 in 178, and continues for a distance of 815 yards. This gradient terminates close to the down distant signal, and from that point to the point at which the collision occurred the gradient is a falling one of 1 in 460.

From a point therefore 80 yards west of the Saffron Walden signal-box the gradient is a falling one in the direction of Audley End to the point at which the collision occurred.

### *Evidence.*

*John Crack*, relieving signalman and guard, states: I have been nearly 17 years in the service of the Company, during a little more than two years of which I have been employed as relieving signalman and guard. On the 8th February I was acting as guard to the goods train which left Audley End at 6.35 p.m. for Saffron Walden. My train consisted of the following vehicles, attached to the engine in the order given:—

- 1 truck of goods.
- 4 trucks of coal.
- 1 brake van.

They were all four-wheeled vehicles, and they were all fitted with the ordinary hand-brake. We arrived at Saffron Walden at 6.40 p.m., and came to a stand on the running line opposite the platform. The following were the shunting operations which I then carried out:—I unhooked the brake and left it standing on the main line. I then sent the engine and the five trucks ahead over the loop points, and backed them all into the siding. I then disconnected the two rear trucks, and left them in the siding beyond the cross-over road connecting the siding with the main line. I then drew the three remaining trucks forward, to clear the points of the cross-over road leading from the siding to the main line. When clear of those points, I pushed the three trucks back on to the cross-over road, between the siding and the main line. Before the engine and trucks came to rest, I disconnected the rear trucks, and drew forward again with one truck, leaving the two trucks on the cross-over road. I then backed the remaining truck into the siding, where I had previously left the two others. I then sent the engine forward again, and backed it on to the cross-over road, to pick up the two trucks which I had left there; but when I got there, I found the two trucks had gone. I at once ran down the line after them. I caught them up at the over-bridge near the down home signal. I found that they were running away. I succeeded in putting down one hand-brake, but the trucks appeared to be gathering speed, and I was unable to put down the others. The trucks at this time were proceeding so fast that I was unable to keep pace with them. I continued, however, to run after them, and I then heard the noise of a collision, and I then found that they had been run into by a down train. When I left the two trucks on the cross-over road they were just moving. I did not put down their brakes. I admit that I ought to have done so. My explanation for not doing so is that I considered the trucks were going so slow that they were certain to come to rest forthwith. I admit that it was an error of judgment on my part to have omitted to put down the brakes. I have been on the line several times, and I consider I am acquainted with it. I

came on duty on the 8th February at 9.0 a.m., to work till 7.40 p.m. I came off duty at 7.40 p.m. on the previous day.

*David Faben*, driver, states: I have been in the service of the Company nearly 20 years, during the last 17 months of which I have been employed as a full certified driver. On the 8th February I was in charge of the goods train which left Audley End at 6.35 p.m. I came on duty on the 8th February at 9.30 a.m. to work till 7.40 p.m. I had come off duty on the previous day at 8.25 p.m. My engine was a four-wheels-coupled tank-engine, fitted with the Westinghouse brake, working blocks on the four coupled wheels, and with a hand-brake working the same blocks. We arrived at Saffron Walden at 6.39 p.m. We arrived on the main line and came to a stand opposite the platform. The guard unhooked the brake and sent me ahead with the five trucks over the points to come on to the loop-road. We backed from the main line on to the loop, and into the siding. The guard unhooked two trucks and gave me a signal to draw the remaining three trucks forward on to the loop. He then gave me, a signal to set back the two rear trucks on to the loop. I did so, and while doing so the guard released the couplings of the two trucks while they were on the move. He then gave me a signal to draw forward again and then back the remaining truck into the siding. He unhooked that truck, and he then gave me a signal to go ahead again on to the loop. He told me he was going to back me again on to the two trucks which I had left on the loop, and he gave me a signal to do so; but, finding they were gone, he ran away to endeavour to find them. I followed the guard up the line to see if I could find the trucks, but came to a stand at the starting signal. My fireman went off down the line with a hand-lamp to see if he could find the trucks, but I remained with the engine. The trucks which were left on the loop were on the move when they were uncoupled. They were moving at about a walking pace.

*Alfred William Sutton*, signalman, states: I have been nearly seven years in the service of the Company, during the last 12 months of which I have been employed as a signalman at Saffron Walden. I came on duty on the 8th February at 10.15 a.m. to work till 10 p.m. I came off duty on the previous day at 10 p.m. I remember the goods train arriving at Saffron Walden at 6.40 p.m. I saw that the brake was unhooked and left by the side of the platform. Two of the trucks were then shunted into the siding, and two were put on the cross-over road connecting the loop line with the main line. I saw these two trucks left on the cross-over road, but, owing to the darkness, I cannot say for certain whether they were at

rest or whether they were on the move. I then watched and shifted the points for some more shunting operations, and my attention was thereby taken away from the trucks, and I did not notice that they had disappeared. The first warning I had that the trucks had gone was my seeing the guard running down the line, and I then realised that the trucks had disappeared and he was running after them. At 6.43 p.m. Audley End offered me the 6.45 p.m. passenger train. I accepted it under the "Section clear, station blocked" signal. At the time of sending this signal, I realised that the line was foul at its connection with the loop line, and that, therefore, I could not accept with "Line clear." I did not lower either my home or distant signals for it. At 6.46 p.m. I received the "Train entering section" signal from Audley End. It was just as the signalman from Audley End gave me the "Train entering section" signal that I discovered that the two trucks had run away. I at once sent Audley End the "Obstruction—danger" signal. I then picked up my lamp and ran out to try and stop the trucks. I did not, however, succeed in reaching them, and I returned to my box. While I was coming back to my box I heard the noise of a collision.

*William Beaumont*, driver, states : I have been nearly 39 years in the service of the Company, during 15 of which I have been a full driver. On the 8th February I was driving the 6.45 p.m. train from Audley End to Bartlow. My engine was a four-wheels-coupled tender engine running tender first. It was fitted with the Westinghouse brake working blocks on the four coupled wheels and the four tender wheels, and with a hand brake working the blocks on the tender wheels. My brakes were in good order. I came on duty on the 8th February at 12.10 p.m., to work till 10.20 p.m. I had come off duty on the 7th February at 10.20 p.m. We left Audley End at 6.45 p.m. I knew nothing whatsoever of there being anything on the line in front of us until the collision actually occurred. When leaving Audley End I had received the "Section clear but station blocked" signal, and on that account I thought I might find the "Home" signal at Saffron Walden against me, so before reaching the "distant" signal I shut off steam, and I shut off steam just before the accident occurred. I had previously sighted the "Distant" signal and had seen that it was against me. I shut off steam on this occasion rather sooner than I usually do on account of having received the "Section clear but station blocked" signal. The night was very dark indeed. I was keeping a good look out, but on account of the darkness it was impossible for me to see the trucks in front of me, and I knew nothing at all about them, until I struck them. I calculate that our speed at the time of the collision must have been about 20 miles per hour. My brakes were not applied at the time of the collision. My train parted behind the engine, and the three carriages on the train were left behind while my engine ran on about 30 yards in front of them. None of my train was derailed at all. I was severely injured by the collision and was carried away. The tender of my engine was a low one, and the fact of having it in front of me, did not in any way interfere with my view of the line. There was very little coal in the tender at the time. It is customary for the

engines running between Audley End and Bartlow, a distance of  $7\frac{1}{2}$  miles, not to be turned, and they run therefore always one way, tender first.

*Frederick Braybrook*, acting fireman, states : I have been about five years in the service of the Company, during about three of which I have been an acting fireman. I came on duty on the 8th February at 4 p.m., to work till 10 p.m. I had previously come off duty at 2 a.m. on the same day. I was acting as fireman to the 6.45 p.m. train from Audley End with driver Beaumont. I remember our getting the "Section clear but station blocked" signal when leaving Audley End station. I knew nothing of there being any trucks on the line before the collision actually occurred. I was keeping a look out on my side of the engine, but owing to the darkness of the night I could not see anything of the trucks in front of me. Steam had been turned off just before the collision occurred, but the brakes were not applied. I had seen the "distant" signal before the collision occurred, and I noticed that it was at danger. I should think our train was going about 30 miles per hour at the time of the collision. I was severely injured by the collision, and was knocked insensible by it. We were running tender first. The fact of our running tender first did not particularly interfere with the view of the line in front of me. I do not think that the fact of the tender being in front of me in any way prevented my seeing the trucks. There was no coal standing up in the tender to interfere with our view. We get a slightly better view of the line in front of us when running engine first than we do when running tender first.

*Arthur Mumford*, guard, states : I have been nearly 37 years in the service of the Company, during 26 of which I have been a guard. I came on duty on the 8th February at 11.52 a.m. to work till 9.52 p.m. I came off duty on the previous day at 9.52 p.m. I was guard of the 6.45 p.m. train from Audley End to Bartlow. My train consisted of the following carriages attached to the engine in the order given :—

	Wheels.
One third-class brake	... 6
One composite	... 6
One third-class	... 6

I was riding in the brake next the engine. My train was fitted with the Westinghouse brake, working blocks on four wheels of each carriage. We left Audley End at 6.45 p.m. Before leaving the station I heard the station-master tell the driver that the section was clear, but the station was blocked. The first I knew of the collision was feeling the shock of it. I should not think that our speed was more than 20 miles per hour. I cannot say whether steam was turned off at the time. The brakes were not applied at the time. My train parted behind the engine, and the engine ran on about 30 yards in front of the carriages. I myself was slightly injured by the collision, but I did not receive any complaints from passengers. It was a very dark night. None of the carriages of my train were derailed. I think the collision occurred about 6.48 p.m. My brakes were in good order. It was the breakage of the Westinghouse pipe which brought my carriages to a stand.

### Conclusion.

From the above evidence it is clear that this accident was primarily due to want of care in carrying out the shunting operations at Saffron Walden with the vehicles of the goods train.

The down goods train, which consisted of five waggons and a brake van, arrived at Saffron Walden from Audley End at 6.40 p.m., and came to a stand on the running line opposite the station platform. Three of the waggons, viz., the first, fourth and fifth, had to be placed in the siding at the west end of the station, whilst the remaining two, viz., the second and third, were coal trucks for the locomotive shed, which is situated some way to the east of the station.

The shunting operations to distribute these trucks to their respective destinations were carried out by the guard of the train, guard Crack, and they were as follows:—

Crack first unhooked the brake van and left it standing on the running line whilst he drew the five waggons forward clear of the loop points at the east end of the station. He then backed these five waggons into and along the loop and thence into the siding at the west end of the station, where he left the two rear waggons. He then drew the three remaining waggons forward on to the loop again, and when they were clear of the connection leading from the loop to the siding he backed them along the connection leading from the loop to the main line. Crack intended to leave the two rear waggons standing on the loop at that point while he placed the leading waggon in the siding, so for this purpose he unhooked the two rear waggons and sent the engine forward again with the remaining one. Crack admits that at the time when he uncoupled these two waggons they had not yet come to rest, and that he went away before they had done so and without putting down their brakes; he states that the two waggons were moving very slowly at the time, and he felt so confident that they would at once come to rest that he did not consider it necessary to take any steps to secure them, but he fully admits that it was his duty to have seen that the trucks were secure before he did leave them.

Crack then placed the remaining waggon in the siding, and when he returned with the engine for the two waggons he found that they had gone; he at once went down the line after them and, though he caught them up and lowered one brake, they had then got on to the steeper incline, and owing to their increasing speed he was unable to keep pace with them.

Meanwhile at 6.43 p.m. signalman Sutton, who was on duty in the Saffron Walden signal-box, was offered the 6.45 p.m. passenger train from Audley End; shunting operations with the goods train were then being carried on in the station, so he was unable to accept the train with the "Line clear" signal, but as the line was clear to the facing points of the loop, he accepted the train with the "Section clear but station blocked" signal, keeping his home signal, which was 185 yards outside the loop points, at danger. He knew nothing of the waggons having run away until it was too late to stop the passenger train, though he endeavoured to do so.

Driver Beaumont, who was driving the passenger train, was duly warned before leaving Audley End that the Saffron Walden station was blocked. He appears to have taken all due precautions and to have turned off steam before reaching the distant signal for Saffron Walden. Just before reaching that signal, however, his engine came into collision with the two coal trucks with the result given above.

The night was a dark one, and as the trucks had no lights on them, Beaumont cannot be blamed for not seeing them; he had his train well in hand ready to stop at the home signal, and he seems to have been keeping a good look-out, so I do not consider that he can be held to be in any way to blame in the matter.

The accident was undoubtedly due to the fact of the two waggons having been left on the loop without their having been properly secured. At the time at which Crack uncoupled these waggons they were probably moving at a higher speed than he estimated, as it is clear that they at once ran out of the loop points on to the main line with sufficient speed to reach the falling gradient, which commences 30 yards beyond those points. When once they commenced descending this falling gradient, their speed gradually increased, and the collision accordingly occurred.

The responsibility for this accident must rest entirely on guard Crack, who candidly admits the error which he made in not securing the trucks before he left them. He has been 17 years in the Company's service, and bears an exceedingly good character.

No blame appears to attach to any other of the Company's servants.

I have, &c.,  
P. G. VON DONOP,  
*Lieut.-Col., R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

## APPENDIX.

## DAMAGE TO ROLLING STOCK.

Damage to engine, No. 104E, tender.—Back and bottom of tender damaged, all brake gearing and rods, draw spring, both tender buffers, draw hook and coupling, and Westinghouse pipe broken ; one lamp smashed.

Great Eastern third class brake, No. 767.—Four end lights and framing, and 1 shelf inside guard's compartment broken ; outside of end panels damaged.

Great Eastern composite carriage, No. 2.—One headstock cracked under buffer casting.

Great Eastern third class carriage, No. 403.—One headstock cracked under buffer casting.

Great Eastern steel-framed locomotive coal wagon, No. 1,072.—All under-framing and one end destroyed ; sides and framing will require renewing ; axle boxes, axle guards, buffer spindles, buffer castings, etc., broken.

Great Eastern steel-framed locomotive coal wagon, No. 1,883.—One steel headstock and under-framing bent, 2 buffer castings, 2 buffer spindles, all boards at one end, and 1 side rail broken.

## DAMAGE TO PERMANENT WAY.

46 chairs broken.  
3 fish plates broken.

13 sleepers damaged.

Printed copies of the above Report were sent to the Company on the 24th March.

## GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.

March 13, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 25th February, the result of my enquiry into the collision that occurred at about 1.42 p.m. on the 17th idem at Stourbridge Junction on the Great Western Railway.

In this case as the 1.12 p.m. passenger train from Wolverhampton to London was approaching the junction it ran into a light engine which was standing at the home signal of Stourbridge Junction North signal cabin. Both engines were badly damaged, and several windows and buffer castings of the train were broken. Nine passengers have complained of slight injury, and the driver and fireman of the light engine and the guard of the train were cut or bruised.

The light engine was a saddle tank engine, and was travelling bunker first. The train consisted of a four-coupled express passenger engine and four eight-wheeled coaches, and it was fitted throughout with the automatic vacuum brake.

Details of the damage to the engines and carriages will be found in the Appendix.

*Description.*

This collision occurred at Stourbridge Junction, the points of which are worked from the Stourbridge Junction North signal-box. It is an ordinary double junction between the main line from Wolverhampton to London *via* Worcester, and the branch line from Birmingham. The North box up main line home signal covering the junction is 220 yards from the signal-box, and as the line between the two is practically straight, the light engine was clearly visible from the box.

The box next in rear of the junction is the Engine House box, which is 677 yards from the up main home signal of the North box, or 897 yards from the North box, the line between the two boxes being carried on viaduct for the greater part of the distance. The box ahead in the direction of London is Stourbridge Junction Middle box.

The gradients are as follows :—

From Engine House box towards North box, for a distance							
of 440 yards ... ..	...	...	...	...	...	...	Level.
Thence as far as North box, home signal	...	...	...	...	...	...	1 in 198 rising.
From North box home signal to North box	...	...	...	...	...	...	Level.

Between the Engine House box and the North box home signal the line curves to the right, as seen from an engine travelling in the direction of Worcester.

There is some slight difference of opinion between the witnesses as to the state of the atmosphere, some saying that it was clear and bright, others that it was hazy. But I do not think the day was other than sufficiently clear for a good view of the line to be obtained within reasonable limits both from the signal-box and the engine of the train.

There is a refuge siding on the up side of the up main line between the end of the viaduct and the home signal of the North box, and owing to curvature of the line it is not easy for a driver approaching the junction from Engine House to distinguish with certainty between an engine which may be standing in the siding and one on the main line, until he is within about 200 yards of it.

### *Evidence.*

*Henry John Townsend*, signalman, states: I came on duty at 6 a.m. Monday, February 17th, 1902, and took up my ordinary duties at the North signal box, Stourbridge Junction. At 1.24 p.m. I took a goods train from the Engine house, which passed in at 1.31 p.m. At 1.25 p.m. I took a pilot engine on from Lye on the warning signal, and this passed in at 1.33 p.m. A Bordesley engine was also taken on the warning signal from the Engine house at 1.31 p.m., and this arrived at my home signal 1.34 p.m. At 1.36 p.m., finding the goods train and first engine still on the up road and the 1.12 p.m. passenger train from Wolverhampton getting due, I crossed the two former on to the down main line. Unfortunately for the moment I forgot that the Bordesley engine was standing at my up main line home signal, and I cleared back to the Engine house box at 1.36 p.m., at which time that box asked "line clear" for the up passenger train, and I took it on at 1.36 p.m., taking off all my signals. The Bordesley engine took the signal and commenced to come towards my signal box, but had only got a few yards when the passenger train ran into it. When this happened I was engaged getting the goods train off the down road into the sidings to clear the main line for the 1.44 p.m. passenger train to Birmingham. In crossing the light engine from Lye and the goods train coupled on to it from up to down line I took the former to be the Bordesley engine, and when clear over the points cleared the up main line as stated. It was purely an oversight on my part, which I greatly regret. There was no one in the signal box with me, and I alone am to blame for the accident. Stourbridge Junction North box is an 8-hour box. I had come on duty at 6 a.m. Absolute block for goods trains is not worked between the north and middle boxes; but absolute block is in force for passenger trains. The goods train and light engine from Lye were at the Middle box home signal. I asked the signalman at Middle box if he could deal with them, and he said he could not do so at the time. I told him I would see to them, and I called the shunter up, and I told him the points were right to cross the train and engine from the up to the down line, and he went and brought them across, and I then put the goods train and Lye engine into the down siding. I think the entry of the time at which I gave line clear to the engine shed box should have been 1.39, instead of 1.36, as shown in my book. The time at which the goods train was crossed from the up to the down line is entered in the book as 1.35. I received the shunt signal from the engine shed box, and I replied by giving "Line clear." I have been in the Company's service 19 years, signalman 18 years, and have been most of my time in the neighbourhood of

Stourbridge. I have been at Stourbridge Junction since 1886.

*Frank V. Smith*, signalman, states: On Monday, February 17th, I came on duty at 10 a.m. (after having had 14 hours off duty), and took up my ordinary duties at the Engine House box. It is a 10-hour box. At 1.17 p.m. I obtained "line clear" from the North box for the 6.45 a.m. Bank train, and "train out of section" was returned to me for same at 1.23 p.m. I then asked "line clear" for a special of empty waggons which was accepted by North box at 1.23 p.m., "train out of section" returned at 1.30 p.m. At 1.31 p.m. I asked "line clear" for a light engine which the North box accepted, on the "warning" signal. I instructed the driver according to rule, and the engine left at 1.31 p.m. At 1.34 p.m. "line clear" was asked from Brettell Lane for the 1.12 p.m. passenger train from Wolverhampton, which I accepted, and train was put on line at 1.39 p.m. As "train out of section" for the engine had not been received from the North box I sent the shunt signal, 1-5-5, at 1.39 p.m., which was answered, and "train out of section" given at 1.40 p.m. I then asked "line clear" for the passenger train, which the North box accepted, and I took off all my signals, and the train passed at 1.41 p.m. When I lowered my advance starting signal I noticed the North box distant signal stood at danger, and I am unable to say when it was lowered. I did not hear the passenger train sound the whistle, either coming down the bank or while running towards Stourbridge Junction. The train passed my box at the usual speed.

*F. E. J. Hill*, driver, states: I have been in the Company's service 20 years, and I have been driver two years. On 17th February I came on duty at 6.45 a.m., to work till about 5.55 p.m. I worked the 7.45 a.m. train from Bordesley Junction to Stourbridge. I put my train away in the up sidings, and then went to shed to turn, ready to go back to Bordesley Junction. When I left Engine House signal box I received the warning signal from the signalman, and I came to a stand at the home signal North box. My engine was a saddle-tank engine, six-coupled, and I was travelling bunker first from Engine House to Stourbridge Junction. I think I was standing about four minutes at the home signal, when the signal was lowered. I was down on the ground oiling, when the signal dropped. I was at the side of the engine furthest from the signal. As soon as the signal dropped, my mate opened the whistle and called out to me. I at once got up on to the foot plate and gave the engine steam, and started away. I heard no whistle at all from any other train. I never

noticed the passenger train coming, and the first I knew of its presence was the shock of the collision. My left leg was badly hurt and the right leg slightly so. I have been off duty ever since, and am not yet fit for duty. I whistled for the signal to be lowered when I first came to a stand at it, but I did not send my fireman to the signal box, nor did I whistle a second time. There is some difference of opinion among drivers as to the interpretation of the rule 55 about sending firemen to the signal box. The work of the engine was similar to what happens on most days. We usually get the warning signal at Engine House box, and usually are stopped at the home signal North box for a short time. The engine was a good deal damaged. The boiler was shifted on the frame and buffer beam at chimney end broken, smoke box damaged; angle irons of the frame at leading end were strained.

*H. Tarver*, fireman, states: I have been in the Company's service about 4½ years, and fireman 2½ years. On the 17th February I came on duty at 6.40 a.m. to work till about 5.55 p.m. I have heard the driver's statement read and I agree with it, but I think I opened the regulator to give the engine steam when we started from the home signal. I had no idea the passenger train was behind us till the collision occurred. I was bruised from head to foot by the blow. The passenger train struck the engine twice. After the second blow I jumped off on to the ground. My engine stopped at last, nearly opposite the signal box. The weather was bright and clear. I understand my rules, but I thought rule 55 applied after having stood at the home signal five minutes.

*William Henry Watkins*, driver, states: I have been with the Company 35 years, and I have been driver 14 years. On the 17th February I came on duty at 11.50 at Wolverhampton to work till about 12.40 a.m. next morning. My engine was No. 3,220, four-coupled express passenger engine. I was working the 1.12 passenger train from Wolverhampton to Paddington. All signals were off for me at Brettel Lane, Engine house and North box Stourbridge Junction. I shut off steam as usual between the distant and home signal for Engine house. My train consisted of four eight-wheeled coaches, and it was fitted throughout with the automatic vacuum continuous brake. After rounding the curve at the south end of the viaduct, and when travelling at about 30 miles an hour, I noticed a light tank engine standing at the home signal. When I was about 150 yards from the engine I saw that it was on the main line. I had seen the engine before this, but I thought it was in the siding. Owing to the thickness of the atmosphere and the curve of the line, I could not see sooner that it was on the main line.

I instantly applied my brake and reversed my engine and applied steam. The engine wheels then skidded. I opened my whistle. When I got near the light engine it was on the move, but it did not get away clear, and I struck it about 10 yards south of the home signal, having at that time reduced the speed of my train to 10 to 15 miles an hour. There was a rebound, and my engine struck the light engine a second time. Three coaches of my train broke loose. My engine came to a stand near the signal-box. The buffers of the two engines were interlocked. The leading buffer plank and part of the side framing were damaged, and the boiler was moved on the frame and front of smoke-box damaged. A drawbar between first and second coaches was separated, and several coach buffers and windows were broken. The collision occurred about 1.40 p.m. My train was two minutes late.

*W. T. Gilbert*, fireman, states: I have been with the Company 11 years, and I have been fireman seven years. On the 17th February my hours of duty were the same as my driver's. I agree with the driver's statement. I looked outside the cab while running between the viaduct and Rufford's bridge, and saw the engine on the up main line. I at once shouted to the driver "Whoa," but he had already seen it and applied the brake. The whistle was blown, I believe, just after coming off the viaduct. The weather was slightly hazy.

*John Rice*, passenger guard, states: On Monday, February 17th, 1902, I came on duty at 10.15 a.m. I worked the 1.12 p.m. passenger train from Wolverhampton. We left on time and nothing occurred outside the ordinary working until we reached Stourbridge Junction. The train left Brettel Lane at 1.39 p.m., three minutes late, and just after passing the up home signal, Stourbridge Junction North box, the train struck a light engine which was on the up main line. My train consisted of four eight-wheeled coaches, and I was riding in the rear of the train. After the impact, which occurred about 1.41 to 1.42 p.m., the train parted, the engine and one coach travelling some distance from the rear portion. The rear portion came to a stand foul of the junction of the branch line to Birmingham. At the time the weather was somewhat dull, but there was nothing to obscure the sight of signals, &c. I did not hear or notice any engine whistle prior to the impact. I was thrown down in my van and my left arm was injured. I am better now and have resumed duty. I have been in the Company's service nearly 20 years. I was due to book off duty at about 8.30 p.m. The train was properly fitted with the vacuum brake, which was in good order. I should think the speed at the time of the collision was about 25 miles an hour.

### Conclusion.

The cause of this collision is fully explained in the evidence of Signaller Townsend, who was on duty in the Stourbridge Junction North box. He simply forgot that the engine was at his home signal, and without looking to see whether the line was clear or not, "accepted" the passenger train as soon as it was offered to him from Engine House box.

The sequence of events leading up to the collision is as follows:—At 1.31 p.m. a goods train arrived at the North signal box from Engine House; at 1.33 a light engine arrived at the branch line home signal from Lye; and at 1.34 a second light engine (the one concerned in the collision) arrived from Engine House at the up main home signal of the North box. Up to this time the working seems to have been according to rule, the



two light engines having been "accepted" under the "warning arrangement." Finding that the signalman in the Middle box could not dispose of the goods train and the light engine from Lye, and being desirous of clearing the up main line for the London express, which was nearly due, Townsend arranged to attach the light engine to the rear of the goods train, and to cross them as one train from the up to the down line by means of the cross-over road near his signal box, and when this was done he caused them to be put into the down refuge siding. This operation seems to have been completed about 1.36.

At 1.39 or 1.40, Townsend received "is line clear" from Engine House for the passenger train, and having entirely forgotten that the second light engine was still standing at his up main home signal, he "accepted" the train by giving "line clear" for it, and after passing the block signals on to, and receiving "line clear" from, the Middle box, he lowered his up main line home signals. As soon as the home signal was lowered, the driver of the light engine which was standing at this signal, gave his engine steam, being under the impression that the signal had been pulled off for him. The engine had not however proceeded many yards before it was overtaken by the passenger train.

The driver of the light engine was quite unaware of the approach of the train. This was doubtless due to the fact that his engine had a high saddle tank, which, as the engine was running bunker first, intercepted his view to the rear, so that even if he had cast a glance backwards, which there was no occasion for him to do, he would not have seen the train.

The driver of the express says that he saw the light engine when he was on the viaduct, but thought that it was in the up refuge siding. On leaving the viaduct, and when about 150 yards from the engine, he discerned that it was on the up main line. He was then travelling, according to his statement, at 30 miles an hour (which is, I think, considerably below the mark), and immediately did all he could to stop. But time and distance were too short, and though speed was reduced according to the guard to 25 miles an hour, it was impossible to stop the train altogether before it overtook the light engine. Fortunately the latter was on the move, but in spite of this the shock of the collision was severe.

The two engines became buffer-locked and ran forward 180 yards before coming to rest. The train became separated, one coach remaining attached to, and going forward with, the train engine, while the other three coaches stopped within a few yards.

Clearly the collision is to be attributed to forgetfulness on the part of signalman Townsend. What this man was doing between 1.36, the time when he shunted the goods train, and 1.40, when he "accepted" the passenger train, cannot be stated. He can hardly have been attending with any care or diligence to his duties, and the appearance of the register book indicates that he had omitted to make in it the entries referring to the light engine at the proper times. He frankly admits his fault, and there is no more to be said. He had been on duty 7 hours 40 minutes, and as it is an 8-hour box, his time for relief was close at hand.

The suggestion was made to me that driver F. Hill, of the light engine, had been remiss, in that he failed to send his fireman to the signal-box according to rule to remind the signalman that there was an engine at the home signal. The rule (No. 55 in the General Rule Book) says, "In case of detention at a home or starting or advanced starting signal, the engine driver must immediately sound his whistle, and *if still detained* the . . . fireman must go into the signal-box and remind the signalman of the position of the train, &c., &c." The wording is somewhat indefinite, it being left to the discretion of the driver to interpret for himself the words in italics. In this case driver Hill perhaps committed an error of judgment in not having sent his fireman to the signal-box. But it is only right to point out that during the absence of the fireman the light engine was bound to remain stationary, and had the fireman failed to reach the signal-box before Townsend "accepted" the passenger train, the engine would have been at rest when the train struck it, and the collision would have been much worse.

It would be a great advantage if, in places such as this, where the home signal is a long way from the signal-box, a telephone or an electric bell were attached to the signal post, to enable drivers to communicate with the signalman. The practice of sending the fireman or guard to the signal-box is open to many objections, and seems somewhat out of date.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
H. A. YORKE,  
Lieut.-Col., R.E.



## APPENDIX.

## PARTICULARS OF DAMAGE TO STOCK.

Engine No. 3,220.—Rivets on right side of cab, front vacuum pipe, whistle pillar, both front buffers and coupling broken; front buffer plank smashed; both framings bent; expansion brackets shifted on framing and foot-plate damaged; rivets in smoke box disturbed.

Engine No. 1,258. — Spring balance, water gauge frame, pet pipe stud on clack box, right injector feed cock, levelling pipe in tank, framing stay in front of fire box, leading buffers, steam pipe and blast pipe in smoke box, and vacuum pipe, all broken; smoke box broken. Both whistle pillars, front plate of cab, ejector box and pipes, right injector feed pipes and front

sand-boxes damaged, and boiler moved on framing.

Composite Carriage No. 853.—Three buffer-guide castings, one draw-bar hook, five quarter lights, and two lavatory basins broken.

Third-class Carriage No. 3,205.—Eight quarter lights and three buffer guide castings broken, and buffer rods bent.

Tri-Composite Carriage No. 1,280.—Six quarter lights broken.

Brake-van No. 2,249. — Two quarter lights broken.

Printed copies of the above Report were sent to the Company on the 8th April.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
28th January, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with your Order of the 17th January, the result of my inquiry into the causes of the collision which occurred on the 11th January between a passenger train and an empty waggon train at Pendleton New, on the Lancashire and Yorkshire Railway.

In this case, at the 7.30 a.m. passenger train from Manchester to Wigan was crossing from the down fast to the down slow line at Pendleton New Station, it collided with the van of a special train of empty waggons which was standing with the engine at the up slow line home signals for Windsor Bridge No. 3 box, and the rear foul of the crossing above mentioned.

The passenger train consisted of a four-wheels-coupled radial tank engine, third van (six wheels); bogie third; bogie composite; third (six wheels); and bogie third van, in the order named, fitted with the automatic vacuum brake on the four coupled wheels of the engine and all carriage wheels except the centre pair of the two six-wheeled vehicles.

The empty waggon train consisted of engine, 62 empty waggons, and a brake van. The brake van of the empty waggon train was derailed, and the waggon next to it had its trailing wheels lifted off the rails.

No vehicle of the passenger train left the rails.

Four passengers complained of injuries.

Details of damage to rolling stock and permanent way are given in the Appendix.

*Description.*

There are four lines of rails through Pendleton New Station, viz., up and down fast and up and down slow roads, running approximately south-east and north-west. The fast lines are to the north of the slow lines, and the down lines on the south side of their respective up lines. There are two island platforms, and the signal-box is at the south-east end of that between the up and down slow lines.

Just to the south-east of the signal-box are cross-over roads between the fast and slow lines, the facing points in the down fast line being 124 yards from the signal-box, and the corresponding trailing points in the down slow 10 yards from it. The actual crossing in the up slow line is 90 yards from the signal-box, the fouling point between a train passing from the down fast to the down slow line and a train standing on the up slow line is 115 yards to the south-east of the signal-box. The down home signals for Pendleton New box for both fast and slow lines are about 13 yards beyond the facing

points in the down fast line above-mentioned, or 137 yards from the signal-box, and about 22 yards beyond the fouling point of the crossing from down fast to down slow and the up slow lines. The home signal for the down slow line is placed between the up and down slow lines, which widen out on approaching the station.

The next signal-box in advance on the up lines is Windsor Bridge No. 3, and the up slow home signal for that box is 512 yards from Pendleton New box, and therefore 422 yards ahead of the crossing from the down fast to down slow line near the latter box.

The line is on a considerable curve between the two signal-boxes, and the gradient is at first a falling one and then a rising one from Pendleton New to Windsor Bridge No. 3.

### *Evidence.*

*John Henry Yates*, goods guard, states: I have been in the service 19 years, and a goods guard for about nine years. On January 11th I booked on duty at 4 a.m., and my ordinary time of finishing would be about 2 p.m. I was working with a special of empties from Miles Platting to the Ship Canal, *via* Bury loop, and my train consisted of 62 empty waggons and vans and brake-van. On arrival at the home signal for the up slow line at Windsor Bridge No. 3 box, the driver brought the train to a stand, the signal being on. It is the practice to keep us at this signal until a through road can be given to the Ship Canal branch, unless we have work to do at Hope Street. When we came to a stand I looked out of my van, and I noticed that my van was foul of the crossing leading from the down fast line to the down slow at Pendleton New Station, the trailing buffers of my van being just over the crossing in front of the slip points. If my van had been almost clear, but not quite, I should have thought it my duty to call the attention of the signalman to its position, but as we were so obviously foul, and it was quite light enough for the signalman to see this, I did not think it necessary for me to say anything to him. I could see the box quite plainly, and could have done so if the lights in it had not been burning, and I am quite sure that the signalman could have seen that we were foul if he had looked. As soon as I saw the position my van was in I got back in the van and had my breakfast, and I had just finished it, and was putting my tea bottle away when the collision occurred. I was only slightly shaken, and do not feel any the worse. We came to a stand at 7 a.m., and I think we should be standing 35 minutes before the mishap happened. I got out of the van as quickly as I could after the collision, and I was going to the box to warn the signalman when I met the driver of the passenger train returning from the cabin. He told me that he had been to the signalman, and I then went down to my own driver to tell him not to move. My hand brake was off at the time the accident happened, as it was not required to be on whilst I was standing there. I am quite sure that my train was not set back or moved in any way after we came to a stand. All the waggons and vans on my train were four-wheeled vehicles. My van was derailed, and the waggon next to it had its trailing wheels lifted by the footstep of the van. I have never warned the signalman that my van was foul of the crossing. I have sometimes more and sometimes fewer waggons on my train than when standing in the loop.

*William Tattersall*, signalman, Pendleton New Station box, states: I have been in the service about 13½ years and a signalman for 11½ years, over six years of which I have spent in Pendleton New Station box. On January 11th I came on

duty at 6 a.m. to work until 2 p.m. A special of empty goods waggons from Miles Platting to the Ship Canal line, and which had travelled *via* Bury loop, was offered to me on the up slow from Irlam box at 6.48 a.m. I accepted it at the same time, received "Train entering section" at 6.54, and it arrived at 6.57, and came to a stand waiting acceptance from Windsor Bridge No. 3. The latter box acknowledged the "Is line clear" signal for it at 6.58 and it passed me at 7.3, when I gave "Train out of section" signal to Irlam. I was not aware that the train was going to stop at Windsor Bridge No. 3 home signal until I saw it actually stop, but I expected it would stop because I noticed it slow down as it was passing my cabin. I saw it stop and I judged from the position of the brake van relative to back lights of the down home slow line signal that it was clear. It has always been my practice to judge in this way ever since the crossing was put in two or three years ago. I could not at that time see the lines. At 7.34 I received the "Is line clear" signal for the 7.30 a.m. passenger train, Manchester to Wigan, on the down fast line. I acknowledged it at the same time and received "Train entering section" signal at 7.36, and it came into collision at 7.38 a.m. I had to cross it from the down fast to the down slow, and before taking off my signals for it I looked again to see if the empty waggon train was clear of the crossing, and I judged in the same way as before that it was. I did not look on the rails on this occasion. It was a dull morning, but not misty. I must have misjudged the distance, and that is the only explanation I can give of the mistake which has been made. It is a common practice for trains to stand foul of this crossing, and two or three times a day we have to get Windsor Bridge No. 3 box to draw them clear. Had I known that the brake van was foul on this occasion I should have had it drawn clear. I cannot say whether it was light enough for me to see the post of the down home signal, as I always judge by the lights.

*James Brown*, driver, Bacup, states: I have been 26 years in the Company's service, 16 years a driver. I came on duty on January 11th at 4.50 a.m. to work in the ordinary course until about 4 p.m. I was working the 7.30 a.m. passenger train, Manchester to Wigan. We stopped at Salford, and after leaving there all signals were off for me except the distant signal for Pendleton New. I travelled on the down fast line to Pendleton New, where the signal was off for us to cross to the down slow line, and when crossing I was about an engine-length from the brake van of the empty waggon train standing on the up slow when I saw that it was not clear. The end of the buffer plank on the left-hand side caught the van and turned it round, knocking the other end of it foul of the coaches. To me

the van only appeared to be about a foot or two from being clear, and was not overhanging the rail itself. The paint of the engine tank was scraped and the top steps of both leading and trailing steps were broken. I did not see the engine actually strike the van. I was preparing to stop at Pendleton Station and should be travelling from 10 to 12 miles an hour at the time of the accident. I pulled up the train in about 50 or 60 yards. It was breaking daylight at the time, and I could see the whole length of my train directly after the collision. My engine was a radial four-wheeled coupled tank, No. 1,275.

*Herbert Ashworth*, fireman to the above, states: I have been nine years in the Company's service, five years as acting fireman. I did not see anything of the brake van until after the collision occurred, and all that I know is that the signal was off for us to cross from the down fast to the down slow at Pendleton New. I work the same hours as driver Brown.

*Enoch Winrow*, passenger guard, states: I have been in the service 40 years, and a guard for over 27 years. On January 11th I came on duty at 7 a.m. to work until 7 p.m. I have two-and-a-half hours at Wigan, 1.45-4.19, and one hour at Southport, 11.15-12.30. I was in charge of the 7.30 a.m. train from Manchester to Wigan, which was formed as follows:—

Engine.  
Third van, six wheels.  
Bogie third.  
Bogie composite.  
Third, six wheels.  
Bogie third van.

We travelled on the fast line to Pendleton New, and I knew that we should have to be crossed there to the slow line. The driver whistled for the distant signal for Pendleton New, and I put my head out of the window, and noticed that the home signal was off for us to cross. I was

crossing the van for my hand lamp when I was thrown down, and this was the first I knew of anything being wrong. After I had collected myself I at once got out of the van and saw what had occurred. I immediately went back to protect my train. After I had gone back about 90 yards, and could see that the signals in rear were at danger, I put two fog signals on the rails, and then returned to the train to see if I could assist the passengers. I found several passengers injured and rendered what assistance I could. When I was going back immediately after the collision I could see the arms on the bridge of signals at Windsor Bridge No. 3 quite plainly just after I got through the bridge. It was not what could be called daylight, but the day had broken.

*Arthur Moul*, acting driver, Bury, states: I have been 11 years in the Company's service, one year a driver. On January 11th I signed on duty at 4.15 a.m. to relieve the men working an empty waggon special from Miles Platting to the Ship Canal. My normal hours are 10. My engine, No. 1,191, is a six-wheels-coupled goods engine, and the train consisted of 62 empty waggons and brake van. I was stopped at Pendleton New, and when the signal was lowered I drew down to Windsor Bridge No. 3 slow line home signal, where I was again brought to a stand. I stopped with the steps of the motion plate opposite the electric bell post, and I was so near the signal that I could not have seen it without bending down to look through the spectacle. It was coming daylight, and I could see Windsor Bridge No. 3 box quite plainly from where I stood. After we had been standing at the signal for about five minutes my fireman rang the electric communication to warn the signalman at Windsor Bridge No. 3 that we were at the home signal, and I also whistled. I did not set back my train, or move it in any direction until after the collision. I did not feel the collision, and knew nothing about it until the guard told me of it.

### Conclusion.

This collision was due to an error of judgment on the part of signalman Tattersall at Pendleton New Station signal-box under the following circumstances:—

He had accepted from Irlam signal-box (the box in rear on the up slow line) at 6.48 a.m. the train of empty waggons which came to a stand at Pendleton New Station at 6.57 a.m. At 6.58 a.m. it was accepted by Windsor Bridge No. 3 box, the signal-box in advance; it passed Pendleton New box at 7.3 a.m., and was brought to a stand at Windsor Bridge No. 3 up home signals with the brake van foul of the crossing from the down fast to the down slow line. But Tattersall, judging by the relative position of the side lights on the brake van with the back lights of the down slow line home signal, which is situated between the up and down slow lines about 20 yards ahead of the fouling point, considered that the brake van was clear of the crossing. He states that he had always judged when it was dark in this way, and that on this occasion he misjudged the distance between the two lights.

Goods-guard Yates, who was in the brake van, looked out and saw that his van was foul of the crossing from the down fast to the down slow line, the trailing buffers of his van being only just ahead of the crossing in the up slow line, and that as it was so obviously foul he did not tell the signalman, as he thought he must see it for himself if he looked. Yates states that if his van had only just been foul he would have considered it his duty to inform the signalman of the fact.

The empty waggon train then remained foul of the crossing for half an hour, and at 7.34 a.m. Tattersall was offered and accepted the 7.30 a.m. passenger train on the down fast road, and as it was a stopping train it had to be turned on to the slow road. Tattersall states he again looked at the brake van of the empty waggon train before he lowered

his signals for the passenger train, and again judged it was clear of the crossing by looking at the relative position of the side lights on the van and the back lights of the down slow home signal. It was then fast getting light, and he might have been able to see the actual rails of the crossing, but he states he did not look at them, but only at the lights.

At 7.38 a.m. the passenger train arrived, and struck the side of the van of the empty waggon train, turning it round and causing it to foul the rest of the train worse than it fouled the engine.

Owing to the curve in the line, driver Brown could not see that the van was foul of the crossing until quite close to it, but as the train was stopping at the station it was not going more than 10 or 12 miles an hour at the time, and quickly pulled up after the collision occurred, and he is not to blame in any way.

Although there are no regulations by which it was the duty of goods-guard Yates to have informed the signalman that his van was foul of the crossing, I consider that as he was within 90 yards of the signal-box he might have called the attention of the signalman to the fact, especially when he found it was left in that position for so long a time.

Although signalman Tattersall must bear the blame for the collision, I consider it is a difficult matter for him to judge in the dark as to whether a train standing on the up slow line is clear of the crossing from the down fast to the down slow line or not, as he has only an end-on view of the lines, and the fouling point is 115 yards away from the signal-box. I think therefore, the Company should consider the advisability of fixing a clearance bar at the fouling point of the crossing and the up slow line, which would prevent the signals being lowered for a train to cross from the down fast to the down slow line when any vehicle of another train on the up slow line was foul of the crossing.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,

E. DRUITT,  
Major, R.E.

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## APPENDIX.

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### DAMAGE TO ROLLING STOCK.

Lancashire and Yorkshire Third Van, No. 2,338.—Waist and bottom quarter panels, one headstock, footboards, three axle boxes, etc., broken.

Lancashire and Yorkshire Bogie Third Van, No. 2,525.—Two headstocks, door handles, commode handles, footboards, four axle boxes, etc., broken, and body panels damaged.

Lancashire and Yorkshire Bogie Compo. Van, No. 695.—Waist and bottom panels, doors, corner pillars, one headstock, six standing pillars, end corner panels, three axle boxes, etc., broken.

Lancashire and Yorkshire Third Van, No. 1,539.—Waist and bottom quarter panels and framing, doors, corner pillars, end corner panels, top and bottom footboards, leg irons, and two axle boxes broken; partitions, seat rails, etc., displaced and broken.

Lancashire and Yorkshire Bogie Third Van, No. 2,653.—Waist and bottom quarter panels, framing, doors, two axle boxes, etc., broken.

Lancashire and Yorkshire Brake Van, No. 18,200.—Four end boards, four side boards, four end footboards, two axle boxes, one axle guard, four brake blocks, two tie rods, knee irons, and step irons broken; three axle guards, one drawbar hook, push rods, etc., bent; one headstock badly grazed, and journals badly cut.

Lancashire and Yorkshire Waggon, No. 10,314.—One side plank, one end plank, three axle boxes, one buffer head, one bearing spring shoe, and one brake guard broken; one axle guard, and one drawbar hook bent; and one headstock and one end muntin damaged.

Engine No. 1,275.—Leading and trailing steps broken.

### DAMAGE TO PERMANENT WAY.

Two crossing chairs broken.  
Six ordinary chairs broken.

Three sleepers damaged.

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Printed copies of the above Report were sent to the Company on the 20th February

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## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department (Board of Trade),  
8 Richmond Terrace, Whitehall, London, S.W.,  
19th March, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade in compliance with your order of the 15th February, the result of my enquiry into the causes of the collision which occurred on the 12th February, between a passenger train and an empty carriage train at Bradford Station, on the Lancashire and Yorkshire Railway.

In this case the 8.30 a.m. passenger train, from Manchester to Bradford, collided with the rear of an empty carriage train, standing against the buffer stops at the end of No. 4 road in Bradford Station.

The passenger train consisted of a four-wheels-coupled passenger tank engine, with a leading and trailing axle, running bunker first, fitted with the automatic vacuum brake, and a hand brake, both working the same blocks on the four coupled wheels, and of the following vehicles :—

Bogie third van.  
Bogie composite.  
Bogie third van.

The vehicles were fitted throughout with the automatic vacuum brake on all wheels, and the vans were fitted in addition with hand brakes working blocks on the four wheels of one bogie.

Only one passenger complained of injury at the time, but I understand two or three have since done so.

The empty carriages were considerably damaged, but not those of the passenger train, and neither engine, nor any vehicle of the latter, left the rails.

Details of damage to rolling stock are given in the Appendix.

#### *Description.*

The down main line from Bowling Junction to Bradford Station which is alone concerned in this case is on a falling gradient of 1 in 50 the whole way, a distance of 1,726 yards, except for the last 220 yards in the station itself where it is level.

The following distances may be noted :—

	Yards.
Bowling Junction to Coal Shoots Signal Box ... ..	616
Coal Shoots Box to Mill Lane Junction Box ... ..	264
Mill Lane Junction Box to Caledonia Street Bridge ... ..	230
Caledonia Street Bridge to Croft Street Bridge... ..	290
Croft Street Bridge to Bradford A Signal Box ... ..	106
Bradford A Box to buffer stops ... ..	220

The speed restriction laid down by the Company in the Appendix to their Working Time Table is as follows :

"Trains entering Bradford must not exceed a speed of 10 miles an hour after passing Croft Street Bridge."

#### *Evidence.*

*George Sutcliffe*, driver, 56 years of age, states : I have been in the service since 1861, driver over 30 years. I signed off duty at 11 p.m. on the 11th inst., and on the 12th came on duty at 9 a.m. to work until 8 p.m. I worked the Bradford portion of the 8.30 a.m. Victoria to Leeds and Bradford passenger train from Low Moor. I coupled up to it at 10.27 a.m., the train being late, and left Low Moor at 10.28 a.m. The train consisted of third bogie van, bogie composite, and third bogie van, and my engine was No. 1,258, which is a four-coupled passenger tank engine,

with a leading and trailing radial. It is fitted with the automatic vacuum brake on the four coupled wheels, and hand brake on the same wheels as well. We ran bunker first, and just after leaving Low Moor the signals were on, and we were brought to a stand at Low Moor No. 4 down advance signal. We then ran through the tunnel, and were almost brought to a stand at Bowling Junction Station. I applied the vacuum brake then, and it appeared in good order. All distant signals were on down the bank, but the home signals were off when I sighted them. I

came gently over the top of the bank at a speed of 10 to 15 miles an hour, and just before passing Coal Shoots Cabin, I tested the power brake, reducing the vacuum from 18 inches to about 5 inches, and it seemed to act all right, so I blew it off again, and when passing Mill Lane Junction Cabin I put it on altogether because the speed was increasing, but I found it had no effect on the train. I began to pop my whistle. The engine wheels picked up at the Croft Street Bridge, below Mill Lane Junction Cabin, and I opened the trailing sanders, and the fireman the leading ones to check the train. The wheels still skidded, but I left the vacuum brake handle stop in the "On" position, and did not release the power brake. Just before reaching the crossing to No. 4 platform road, I reversed my engine and applied steam, but the wheels were locked, so this had no effect, and we ran into the stationary coaches. I think I was travelling about 10 miles an hour when I hit the coaches. My fireman had the hand brake on slightly after coming over the bank top, and applied it hard at Mill Lane Junction. I account for the accident by the train brake being defective: my engine brake was in good order. When I backed to the train at Low Moor it moved away, and I had to ease back. After the accident, the guard told me he had not had his hand brake on at Low Moor, and was surprised the coaches set back. I found a label on the rear van saying "for repairs" "for brake leaking off." I did not know this until I got to Bradford. I saw the signalman at cabin "A" at the window showing a green flag, but it made no difference as I was doing all I could and I thought the brake would act before anything happened. Both the outer and inner home signals for "A" box were off when I first sighted them.

*J. H. Crowther*, fireman, states: I have been in the service 9½ years, and have been regular fireman for 1½ years. I signed off at 3.50 p.m. on the 11th, and on again 9 a.m. 12th inst., to work till about 8 p.m. When I coupled up at Low Moor I put the shackle on at the same time as the engine closed up, but the coaches moved back, and my driver had to ease up before I could screw up; that was unusual, but I did not mention it to anyone. I applied my hand brake slightly as soon as my driver shut the regulator on getting over the top of the bank, and when passing Mill Lane Junction Cabin, I thought the power brake was not acting well, so I tightened my hand brake. When near the Caledonia Street Bridge, I opened the leading sanders, and my driver, opened the trailing ones. About half-way between Caledonia Street Bridge and Croft Street Bridge the wheels picked up. The driver reversed the engine at this time, but this had no effect, as I do not think the coupled wheels were going round. If there had been no coaches in the arrival road I think we could have pulled up. I think we were running six or seven miles an hour at the time of collision. The driver did not commence to pop until just approaching "A" box near the station.

*George Harrison Leach*, signalman, states: I have been in the service 25 years, and a signalman about 16 years. On February 12th I came on duty at 6 a.m. to work until 2 p.m. I had been off duty from 6 a.m. the previous morning. I am a relief signalman for the Bradford district, and have relieved at "A" box for over 11 years, and know the working of the station well. I received "is line clear" signal for the 8.30 a.m. Manchester to Bradford passenger train at 10.33, from Mill Lane Junction, acknowledged it same time, received "entering section" 10.38, it passed

me at 10.40 into No. 4 road. I should think the train passed me at the rate of 12 to 14 miles an hour, and it far exceeded the speed at which trains usually enter the station. From the speed, I could see that the train would not stop before hitting the carriages standing there. There were five ordinary sized carriages and a low-sided waggon standing against the buffer stops. There was plenty of room for the train to arrive at the platform, and the same state of things exists nearly every day. I cautioned the driver with a green flag as he was passing my box to indicate to him that vehicles were in the road, but I do not know whether he saw the flag or not. I think the train was close on to my outer home signal before I lowered it, because, I had had to set the road for the train after receiving "entering section" signal for it from Mill Lane Junction. The engine wheels were skidding when the train passed me, but I did not hear the driver popping until he got under Wakefield Road Bridge. I did not notice any of the wheels of the coaches skidding.

*Thomas Grayson*, guard, Bradford, states: I have been in the service 19 years, and a guard about 13 years. On February 12th I came on duty at 5 a.m. to work until 3.50 p.m. I worked the same hours the day before. I took charge of the Bradford portion of the 8.30 a.m. Manchester to Leeds and Bradford at Low Moor, and left there at 10.28 a.m., 45 minutes late, due to fog in the Manchester district. My vacuum registered 19 inches in the van. We were stopped at Low Moor No. 3, No. 4, and Bowling Junction. At the latter place we were brought to a dead stand. The vacuum brake had worked well up to this point. We travelled 15 to 20 miles per hour down the bank. After passing Mill Lane Junction box the speed increased a little. Trains usually reduce speed after passing Mill Lane box, and I put on my hand brake, but I noticed that the vacuum brake did not appear to be going on, and I looked at the indicator and saw that the finger pointed to zero. This would just be about Mill Lane. I put my hand brake hard on and looked out of the side window to see our position, and again looked at the vacuum and saw it was on. The train appeared to increase in speed instead of slackening, although my hand brake was rubbing hard. I should think the speed when passing "A" box was 14 miles per hour. I hung on to the brake handle, but when the collision occurred I was knocked on to the floor of the van. My train consisted of bogie third van, 2785, bogie composite, 758, and bogie third van, 471. When I apply my hand brake it only operates on the four wheels of one bogie. All the vehicles of my train kept the rails. I should think there would be 30 or 40 passengers in the train, but only one complained of being hurt. At Low Moor the train arrived on the down loop, and although I examined my train I did not notice a green label on the footboard of bogie third van, 471, in which I travelled. When the engine was coupling up at Low Moor the fireman had to make two attempts before he could catch the shackle on as each time the engine touched the train the coaches ran back, and I was just going back to put on my hand brake when I found he had coupled on. The vacuum must have leaked off very quickly. I have seen the same thing occur occasionally, and I did not think there was anything wrong, as the coaches had been standing about five minutes. I did not see any green flag at "A" box, as I was not looking out on that side. After the accident I had no conversation with my driver, except to ask him if he was hurt. I did not ask him why he had not stopped the

train, and he did not say anything to me as to why the accident happened. I was talking to the fireman after the accident, and said my hand brake was not on at Low Moor. If carriages run back when the engine is backed on to them, after my recent experience, I should think the brakes were defective.

*Walter Squires*, shunter, Bradford, states: I have been in the service seven years, over six years at Bradford, and nearly two years a shunter. On February 12th I came on duty at 6 a.m. to work until 6 p.m., with one and a-half hours off for dinner. I was standing just outside the "A" signal-box when the 8.30 a.m. Manchester to Bradford was coming in. My attention was called to it by hearing the driver popping his whistle, and seeing sparks flying from the engine wheels. I noticed the fireman was working his sanders. There were no sparks from the wheels of the coaches, and the wheels I saw were going round. I did not notice the rear van wheels, because I ran down immediately to see if I could be of any assistance, as I could see that the driver would never be able to stop before hitting something. I cannot say exactly what speed the train came in at, and I did not see any green flag exhibited by the signalman, as I did not look at the cabin.

*John Robert Holbein*, signalman, Mill Lane Junction, states: I have been in the service 28 years, and a signalman 26 years, seven years of which I have been in Mill Lane Junction box. On February 12th I came on duty at 6 a.m. to work until 2 p.m. I worked the same hours the day before. I did not notice anything special about the 8.30 a.m. Manchester to Bradford train when it passed my box. It appeared to be going about the usual speed, 10 miles per hour. I did not hear the driver popping, or see any sparks whatever from the wheels. There was nothing to cause me to think there was going to be an accident. I was offered the train at 10.33, accepted it 10.33, on line 10.38, passed 10.39, out of section at 10.40, from "A" box.

*H. Smith*, emergency signalman, Coal Shoots box, stated: I have been in the service 11 years, as emergency signalman 16 months. I have taken charge of Coal Shoots box several times, and have at present been working as signalman there since January 9th. I came on duty on the 12th inst. at 6 a.m. for eight hours. I left duty the previous day at 2 p.m. I did not see anything unusual when the train passed my box. It appeared to come down the bank at the speed the trains usually run. When the train passed me it would be running from 15 to 20 miles an hour. I did not hear the driver popping, neither did I notice the brake blocks skidding. I watched the train go past Mill Lane Junction cabin and it seemed to slacken about that place. I did not notice sparks flying after the train passed Mill Lane Junction.

*William Bull*, examiner, Victoria station, Manchester, states: I am 26 years of age and have been in the service seven years, 18 months as carriage examiner. I commenced duty at 6 p.m. on February 11th and ceased at 6 a.m., 12th. I am booked off 1½ hours for meals. On arrival of the 9.5 train *ex* Bradford at 10.48 p.m., No. 6 platform, on February 11th, the driver complained that his brakes would not hold. Owing to the train backing out almost immediately I had only time to put one repair label card on the footboard of 471 bogie third van under the projection light. I put the card flat on the foot-

board, as I was in a great hurry owing to the train being on the move. Had there been more time I should have put the card in a position where it would have been more easily seen. I further left a memorandum in the carriage inspector's office in order that word could be telephoned next morning to Red Bank to have the train overhauled and thoroughly tested before leaving again first thing next morning. The effect of the repair card would be that the whole train would be examined. I should have put four labels on, two at each side of each van, had I had more time.

*Robert Henry Lee*, examiner, Red Bank, age 38 years, states: I have been in the service 21 years, 15 years as carriage examiner. I came on duty at 5.30 p.m. till 5.30 a.m., usual hours of working, on February 11th. I had 1½ hours off for meals. I met 471 van set at about 11.30 p.m. on arrival at Red Bank. The whole six vehicles were placed in No. 5 road in the shed with third van 471 outside the shed. It was very frosty and foggy at the time. I went underneath the vehicles in the pit, and the brakework was covered with ice, but I examined every release valve carefully. The vacuum brakes were applied at the time I pulled the release lever over to see that it was working freely, and before the brake had time to entirely leak off I pushed the release lever over again, and by this means heard the ball valve click on its seating again. I did this on each of the vehicles and the brakes were all on when I did this. My examination satisfies me that the release valves were all free, but I noticed that the blocks on 471 van, 758 composite, and 2785 bogie third van would shortly require setting up, and I informed foreman Edge in my list of this fact at 5.30 a.m. on 12th, before leaving duty. The vehicles would probably run three or four days longer before the blocks became really thin. I gave minute examination outside the vehicles after being underneath, and did not see any repair card whatsoever. This I account for owing to the footboards and bottom panels being covered with a thick white frost similar to snow which undoubtedly covered over the label. There were 16 degrees of frost at the time. I think if the cards were not placed flat on the footboard, but bent over between the toe piece and the footboard, it would draw our attention to them, whereas at present it is exceedingly difficult when they are flat on the board to see them in snow and frosty weather. Had I seen the card I would have prevented this set from going into traffic before testing it. The previous night when I tested the brakes the vacuum held on for quite 20 minutes, as I was quite that time examining the train, and came to the Bradford portion the last.

*John Boswell*, carriage examiner, Red Bank, age 37 years, states: I have been in the service 17 years, five as carriage examiner. I was on duty on 12th February from 6 a.m. until 6 p.m., 1½ hours off for meals. I took the numbers and the vacuum register on 471 set previous to leaving on the 12th instant for the 8.30 train to Bradford. I do not examine this train, as it is already examined the night previous. The vacuum gauges showed 20 inches of vacuum in all the vans when the driver blew up his vacuum. The pilot engine moved the train while I was watching it, in the centre van, and came to a stand again for about three minutes, and I noticed that the brakes were holding all right. I was then outside the train. I noticed no repair card on



any vehicle, but 471 and part of 758 had the bottom panels and footboards covered with thick white frost as they were standing outside the shed, and this must have prevented my noticing the card. I noticed when going round the train that five men were under the train, three were re-brakeblocking 471, 758 and 2,785, and the two other men were going over the release valves with lighted tar-brands in order to thaw them and see that they were working freely. This is always done in frosty weather. On two or three occasions I have had difficulty in seeing repair and "Not to go" cards during this bad weather, as they very easily become covered up with snow or frost.

*J. Rhodes*, carriage examiner, Bradford, age 37 years, states: I have been in the Company's service 18 years, nine as carriage examiner. On February 12th I came on duty at 5 a.m. to 5 p.m., usual hours of working, with 1½ hours for meals. I saw this train entering the station, my attention being called to it by the driver popping his whistle. The train was running considerably above the handbrake speed and I thought it was coming in very fast and that something was wrong. After the crash I immediately went into the rear van, 471 bogie third van, and examined the handbrake and found it in good order, and it went on full in 7½ to 8 turns. I examined as far as possible under the train, and the brakework as far as the blocks setting up was concerned was good, but all underneath was one mass of ice. I was unable to examine the release valves minutely owing to confusion, &c. When I examined the train about five minutes after the accident, the brakes on both the vans had leaked off, but those on the centre carriage were on.

*J. Young*, examiner, Bradford, 27 years of age, states: I have been in the Company's service 11 years, six years carriage examiner. I was on duty on the 12th inst. from 10 a.m. to 10 p.m., with 1½ hours booked off for meals. I am a carriage examiner at Broomfield sidings, Bradford, and on arrival at Broomfield sidings between 11.30 and 12 o'clock on 12th February after the accident I tested the brakes of the train with 20 inches of vacuum, and found that, with repeated applications, each vehicle leaked off in from 20 to 30 seconds. The ball valves were taken out and all were found to contain ice, the ball valve of 2,785 bogie third van, the van next the engine being frozen fast to the cage. After cleaning and replacing the valve the train was again tested with 20 inches of vacuum and the brake on 758 composite held for a considerable time, but on each of the vans it leaked off in about 25 seconds. The handbrakes were in good order and had about 6½ to 8 turns respectively.

*John Gaunt*, guard, states: I have been 26 years in the Company's service, 19 as guard. I came on duty on 12th at 6.15 a.m. to work till 1 p.m., having previously come off duty at 1 p.m. on 11th. On the 12th I worked the 8.30 a.m. Manchester to Leeds and Bradford train which arrived at Low Moor about three-quarters of an hour late, and I handed over the Bradford portion (the rear portion) to guard Grayson. I rode in the rear Bradford van to Low Moor, and my gauge showed 19 inches of vacuum. The brakes worked quite correctly as far as I noticed. I did not put on the hand brake when I left my van at Low Moor.

### Conclusion.

The train to which this accident happened, was the Bradford portion of the 8.30 a.m. passenger train, Manchester to Leeds and Bradford, which runs as one train as far as Low Moor. There the train is divided, and the front portion goes to Leeds, and another engine takes on the rear portion to Bradford. On the return journey the two portions meet at Low Moor, and run as one train to Manchester.

On February 11th, the day previous to the accident, the six bogie carriages which formed the whole train in question, arrived at Manchester at 10.48 p.m., and the driver complained to the carriage examiner on duty that the brakes of the carriages would not hold.

The examiner on duty at Victoria Station on 11th February (*W. Bull*), states that as the train was backed out of the station almost immediately after arrival, he had only time to put one repair card on the footboard of one brake van, instead of four cards, viz:—one on each side of the brake van at each end of the train. He also tacked the card flat on the footboard in his hurry, instead of bent over between the footboard and the toe-piece. He also left a memorandum in the carriage inspector's office, in order that a telephone message might be sent early next morning to Red Bank carriage sidings, to have the train overhauled and thoroughly tested, before leaving again the following morning.

The telephone message was sent and received at Red Bank, but owing to various reasons was not acted on.

When the six carriages arrived at Red Bank, at about 11.30 p.m. on 11th February, they were examined by examiner *R. H. Lee*, but the van on to which the repair label was attached remained outside the shed. Lee states he went underneath the vehicles in the pit, and examined the brakes carefully, and was satisfied that the release valves were all free, and that the vacuum held on for quite 20 minutes, during which time he was examining the train. He also states he minutely examined outside the vehicles as well, but did not see any repair card, and accounts for this by the fact that owing to the night being very foggy and frosty, the footboards of the van outside the shed were covered with thick white frost like snow, which covered up



the label. He noticed that the brake blocks on the three vehicles of the Bradford portion of the train were worn considerably, and reported that they would shortly require renewing.

On the following morning examiner J. Boswell took the numbers of the carriages, and the vacuum register, the gauge showing 20 inches in all the vans when the pilot engine was attached, and the driver created the vacuum throughout the train. He further states that three men were putting fresh brake blocks on the three Bradford carriages, and that two men were going over the release valves with lighted tar-brands, in order to thaw them, and to see that they were working freely, this being the practice in frosty weather. He also did not notice the repair card on the footboard of No. 471 brake van, which, having been standing outside the shed all night, was covered with thick white frost, and states that he saw the train move off, and then come to a stand, and noticed the brakes holding all right.

The train was then taken to Victoria Station, Manchester, and ran as usual to Low Moor, where the front portion was detached and went on to Leeds. The guard in charge as far as Low Moor states that the brakes of the train acted quite correctly as far as he knew.

At Low Moor another engine was attached to the three rear carriages for Bradford, and another guard (Grayson) took charge of this portion of the train. Neither of the guards noticed the repair label on the van step, although it was on the rear van of the train in which they rode, and on the platform side.

When the engine backed on to the train at Low Moor, the driver, fireman and guard noticed that the train moved back showing that the brakes were not holding, and the driver had to ease back before the fireman could screw up the coupling, but none of the three took any steps to ascertain why the carriage brakes were not holding as they ought to have been, when the engine was detached.

Accordingly the train started for Bradford, and on reaching the steep gradient of 1 in 50 just after passing Bowling Junction, 1,726 yards from the buffer stops at Bradford station, it began to gather speed. Sutcliffe, the driver, states he came on to the steep gradient at a speed of 10 to 15 miles an hour and tested the vacuum brake just before passing Coal Shoots signal box, 616 yards down the bank, where it appeared to act all right so he released the brakes again. When passing Mill Lane Junction box, 264 yards further down, finding his speed was increasing he applied the brake fully but found it had no effect on the train. The hand brake had been slightly applied the whole way down from Bowling Junction, and was applied fully when passing Mill Lane Junction box. He states the engine wheels began to skid at Croft Street Bridge, only 106 yards from the end of the station platform, but the fireman states this happened some 140 yards further back.

When the wheels of the engine skidded, Sutcliffe still kept his vacuum brake hard on and made no attempt to unlock the wheels and get the blocks to grind on them.

He thinks his speed was 10 miles an hour when he collided with the stationary coaches.

When the train was examined directly after the accident the repair card was found fixed to the step of the van. Also the ball valves were all found to contain ice, and in the van next the engine the ball was found frozen fast to the cage. Subsequently when all the parts of the brakes were thoroughly examined and tested, nothing but ice was discovered to interfere with their proper working, and after cleaning this out, they were found to work perfectly well.

The cause of this accident must be set down to the presence of ice in the ball valves of the vacuum brakes of the three bogie carriages composing the train, but at the same time I consider Sutcliffe might have considerably reduced the violence of the collision, even if he could not have prevented it entirely, by better management of his brakes.

The weight of the train was as follows :—

	Tons. Cwt.	
Engine ... ..	55	19
Bogie third van ... ..	22	7
Bogie composite ... ..	22	18
Bogie third van ... ..	22	7
Total ... ..	123	11

and the effective brake power available was 43·4 per cent. of weight on the coupled wheels (34 tons 15 cwt.), *i.e.* 15 tons, and 5·64 tons handbrake power on the four wheels of one bogie of one van. Total 20·64 tons.

The presence of a very small film of ice on the valve seating would prevent the effective working of the brake, as when air was admitted to the train pipe in order to apply the brakes, it would, owing to the ball not being truly home on its seating, pass into the vacuum chamber as well as into the brake cylinder, and the result would be that there would be atmospheric pressure on both sides of the diaphragm and so little or no movement of the piston, and therefore no application of the brakes.

If the ice in the valves formed after the train had been examined before starting, the fact that the brakes were inoperative could only be ascertained by actually trying them, as the vacuum gauge would be registering correctly.

In the three carriages composing the train in question, the ball valves were below the level of the train pipe, and the connection to the valves led from the bottom of the train pipe so that any water in the latter would tend to run down into the valves. It would appear therefore that when the valves are placed below the level of the train pipe the connection between the two should always be led off from the top of the train pipe to prevent water getting down into the valves, as it does sometimes get into the train pipe.

I am informed by the Vacuum Brake Company, Ltd., that it is always intended that the connection should be made in this manner.

The frost for some days about the date of the accident was very severe, and under such conditions, special attention should be given to the examination of all the gear connected with carriage brakes. It was unfortunate that on the occasion in question the examination of the carriages at Red Bank was not more thorough.

I consider the speed restriction of 10 miles an hour might be extended to the whole distance between Bowling Junction and Bradford station.

I have, &c.,  
E. DRUITT,  
*Major, R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

## APPENDIX.

### PARTICULARS OF DAMAGE TO ROLLING STOCK.

Third van, No. 1,453.—One sole and two headstocks, two underbars, one drawbar, one iron vacuum pipe, one india-rubber vacuum pipe, one india-rubber vacuum branch pipe, two buffer rods, two bottom footboards, two diagonals and inside fittings broken; one vacuum cylinder broken and torn down; two buffer rods bent; all gas pipes bent and twisted out of place; one end telescoped, and minor damage.

Second van, No. 38.—One headstock, two solebars, two underbars, two longitudinals, one diagonal, one bottom side, two axleboxes, four brake hangers, two axleguards, three bottom and two top footboards, two end and one waist panels broken; one vacuum cylinder broken and torn away; gas fittings displaced; rocking shaft and one pair of wheels torn away; brakework badly damaged, and other small defects.

First-class, No. 149.—Four buffer rods bent;

coach end broken in, and inside fittings damaged; body shifted and gas fittings displaced.

Third, No. 1,406.—Three buffer rods bent, and the body shifted.

Third, No. 1,407.—Two underbars, one longitudinal, one solebar, one headstock, one buffer rod, one drawbar, one axleguard, one axle box, two brake hangers, one iron steam pipe, one iron vacuum pipe broken; three buffer rods bent; body shifted and all gas fittings displaced and twisted; inside fittings damaged. This vehicle was telescoped.

Bolster waggon, No. 17,462.—Two solebars, one headstock, one underbar, one side plank, one end plank, one axleguard, one axlebox, two diagonals broken; brakework torn down.

Engine, No. 1,258.—Damage slight; bunker end bulged inwards; left-hand buffer broken; one headlamp and stand broken.

Printed copies of the above Report were sent to the Company on the 14th April.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
March 10th, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 5th March, the result of my enquiry into the causes of the collision, which occurred on the 28th February, between the rear vehicles and the front portion of a goods train in Millwood Tunnel, near Todmorden, on the Lancashire and Yorkshire Railway.

In this case, as the 11.5 p.m. goods train from Rose Grove to Burnley was descending the steep gradient between Copy Pit and Portsmouth signal-boxes, the guard's van and fifty rear waggons broke loose from the three leading waggons and engine, and after running in two parts for over 4 miles the rear portion caught up and collided with the three waggons attached to the engine.

The train in question consisted of a six-wheels-coupled engine with six-wheeled tender, fitted with the automatic vacuum brake on all wheels of engine and tender, and with the hand brake on the six tender wheels, and of 22 loaded and 31 empty waggons, and a 10-ton brake van.

The collision was a very severe one, 13 waggons being broken up and 21 badly damaged. The engine was driven forward through the tunnel, but did not leave the rails.

The fireman and guard were both injured; the former by being knocked off the engine when the collision took place. The driver escaped unhurt.

The accident occurred at 1.30 a.m., and the night was dark and misty, and the rails very greasy.

Details of damage to rolling stock and permanent way are given in the Appendix.

*Description.*

The up line on the Burnley branch, on which the goods train was travelling, falls very sharply from the summit, about five chains beyond Copy Pit Siding signal-box, down to Stansfield Hall signal-box. The following distances and gradients may be noted:—

Copy Pit signal-box to Portsmouth Station box, 1 mile; 394 yards, and the gradient varies from 1 in 68 to 1 in 123, falling.

Portsmouth Station box to Stansfield Hall box, 2 miles, 1,594 yards, and the gradient varies from 1 in 51 to 1 in 78, falling, except for the last 330 yards, where it is falling 1 in 123 for 4 chains, falling 1 in 550 for 3 chains, rising 1 in 587 for 8 chains.

From Stansfield Hall box to the junction with the main line at Todmorden No. 4 box, 454 yards, and the gradient varies from 1 in 429 to 1 in 145, falling.

From Todmorden No. 4 box to the entrance to Millwood Tunnel is 257 yards, and the gradient 1 in 193, falling.

The tunnel is 225 yards long, and the gradient 1 in 193, falling.

Before reaching the summit at Copy Pit box the up line is on a very steep rising gradient of 1 in 67 for a distance of over a mile.

There is a notice board, lettered "Goods train stop to pin down brakes," just at the summit at Copy Pit.

The following are the Rules in the Company's Appendix regarding descending inclines:—

DESCENDING INCLINES.

Engine drivers and guards of cattle, goods, mineral, and coal trains must have their trains well under control when descending inclines, and, when necessary, before entering upon inclines, must stop and pin down a sufficient number of waggon brakes. Care must be taken that the brake levers are not fastened down so tight as to prevent the wheels from revolving.

A point indicated by a conspicuous notice board, lettered "Goods train stop to pin down brakes," will be fixed near the commencement of steep inclines (1 in 65 or steeper), where all goods and mineral trains must be brought to a stand.

Before starting again the fireman must pin down tightly a few waggon brakes nearest the engine. The train must then be drawn slowly on to the falling gradient, and while this is being done the guard must continue putting down brakes until the whole of the vehicles are on the incline. On reaching the bottom the fireman must lift the brakes in the front portion, and the guard those in the rear portion, of the train.

The engine driver must always use steam to pull the whole of the train on to the incline, in order to be thoroughly satisfied that a sufficient number of waggon brakes have been applied,

when he must give two short, sharp whistles, to indicate that sufficient brake power is in operation.

The engine and van brakes must in all cases be off when the train commences to descend the incline, so that they may be held in reserve, and ready for use when required to steady the train down the incline, or to stop it if necessary at any point.

The guard must closely watch the train while descending the incline, and must, if necessary, assist the driver by every means to keep the train under proper control.

In the case of a train starting on, or picking up waggons from, a siding on a steep gradient, the fireman must, before starting the train, put down sufficient waggon brakes to necessitate the driver using steam to start, and, as the train is slowly moving, the guard must continue to put down more waggon brakes until the driver intimates by two short, sharp whistles that a sufficient number has been put down to require his train to use steam down the gradient, the engine; and van brakes being off and in reserve as directed above.

### *Evidence.*

*Wm. Crabtree*, signalman, Portsmouth Station Box, states: I have been a signalman for 20 years, 17 of which I have been at Portsmouth. On February 27th I came on duty at 10 p.m. to work until 8 a.m. on the 28th, having booked off duty at 8 a.m. on the 27th. I received "Is line clear" signal for the 11.5 p.m. Rose Grove to Wakefield goods train from Copy Pit at 1.7 a.m. I acknowledged it same time, received "Train entering section" signal at 1.15, and the engine passed my cabin at 1.24. I noticed when the engine passed my box that it had only about three waggons, certainly not more than four attached to it. I could not see the rest of the train, and I immediately gave "Train divided" signal to Stansfield Hall, which he acknowledged at the same time. I also went to the telephone and gave the circuit call "Train divided" to Todmorden, Nos. 3 and 4, and to Stansfield Hall boxes; after which I got some fog signals in my hand, but on looking out of the window I heard the broken loose waggons approaching. I knew I should not have time to put any fogs on the rails, but I showed a red light to the guard, and as he passed he shouted "What's up," or words to that effect, and I replied "You are broken loose." There was an interval of about one minute between the first and second portions of the train passing me. The broken loose waggons would be travelling about 15 to 20 miles per hour at my box, and the engine would be going about the same rate. I do not think that the driver was aware that he had broken loose at the time he passed me. I could not see any sparks flying, and if there were any brakes down they were not taking much effect. It was a misty night, and the rails would be very greasy.

*Geo. Brooke*, signalman, Stansfield Hall, states: I have been in the service five years, and a signalman three years, two years of which I have been in Stansfield box. On February 27th I booked on duty at 10 p.m. to work until 6 a.m., having booked off duty previously at 10 p.m. on the Wednesday night. I received the "Is line clear" signal for the 11.5 p.m. Rose Grove to Wakefield goods train at 1.15 a.m., and I acknowledged it same time. I got "Train entering section" signal at 1.24, and at the same time I offered the train to Todmorden No. 4 box, but it was not accepted till 1.28, and immediately afterwards I received "Train divided" signal from Portsmouth, and also a telephonic message that the train had broken loose. I sent the "Train divided" signal immediately I got it from Portsmouth to No. 4 box, at 1.24 a.m., and I think the entry in my book in which I state I sent it at 1.28 must be wrong. I got on the telephone to Todmorden No. 4, and told him he must give the train a clear road. He said he could not as he had all his signals off for Salford to Hull express goods. I then asked Todmorden No. 3, but he gave the

same answer. After this I went to the window and saw the engine approaching. I waved a green light from side to side and shouted out to the driver to keep out of the way as he had broken loose and the second portion was following on. Immediately the engine passed I put my signals to danger and placed a red light out of the window. I ran down the cabin steps and put three fog signals on the rails about 15 yards away from the box. Before I could get back the second portion exploded the fog signals. I gave "Train entering section" signal to Todmorden No. 4 when the engine passed me at 1.29. I calculate the second portion would be about half-a-minute behind the first, and I think it would be running at least 50 miles an hour. Shortly afterwards I heard from Todmorden No. 4 that the train had come together in the tunnel. The train engine passed me travelling about 10 to 15 miles per hour. My distant signal was against it. I did not notice anything about the brakes of the 1st portion, but I observed that the brake of the guard's van was throwing sparks and that the wheels were skidding. I could not tell what breaks were down on the waggons next to the van. There were either three or four waggons attached to the engine, but I am not quite sure, certainly not more than four. It was a dark and greasy night.

*Thos. S. Berry*, signalman, Todmorden No. 4, states: I have been in the service 20 years and a signalman 12 years and have been in Todmorden No. 4 box about six months. On February 27th I booked on duty at 10.0 p.m. to work until 6.0 a.m., having booked off duty previously at 10.0 p.m. on Wednesday night. The 12.40 a.m. Newspaper train, Manchester to York, passed my box at 1.15 a.m., and at 1.15 I received the "Is line clear" signal from No. 3 box for Salford to Hull express goods. I acknowledged at same time, and at 1.18, when Eastwood had accepted it, I took off all my signals for it. At about 1.24 the signalman at Stansfield Hall called me up on the telephone and told me the Rose Grove to Wakefield goods train was coming down the bank and he had got "Train divided" signal for it from Portsmouth, and almost immediately he sent "Train divided" signal to me. I at once telephoned to Todmorden No. 2 and asked where the Hull train was and he said it had passed Walsden East. I told him to put on his back distant signals and to stop the train. I then at 1.28 a.m. accepted the Rose Grove to Wakefield train and took off my signals. About two minutes after this the engine passed my box about 15 miles an hour. I waved the driver on with a white light and shouted to him, but he did not give me the impression that he was getting away as fast as he might have done, in fact the impression I formed was that he was putting

a red light on the tender and that he slackened to do this. When he had passed my box about 20 yards a red light appeared and the engine immediately shot ahead as if a special effort was being made. Almost at once the waggons came up and I heard them crash into the front portion of the train about the tunnel. I think the second portion would be travelling about 55 miles an hour when it passed me. It was 1.25 when I received the "Train divided" signal, and I sent it forward to Eastwood at 1.30. The Salford to Hull train was brought to a stand at Todmorden No. 3 home signals at 1.30. It was a very dark night and I am unable to say exactly the number of waggons attached to the engine. As the second portion approached, I could see that there were brakes down on the waggons, as there was fire flying from them as well as from the brake-van. I could not say exactly the number of waggons that had brakes pinned down. I gave "Obstruction danger" signal in both directions at 1.30, when the collision occurred. The guard came back to my box about three minutes after the collision and told me that both roads were blocked, but I had, of course, already sent "Obstruction" signal. I then telephoned to the station to knock the station-master up and to send for the breakdown gang. The guard fainted in my box. The fireman of the train came back to my cabin some time afterwards, but he had come over the top of the tunnel after walking to Eastwood Station and back. He had a deep cut on one of his legs and seemed to be badly hurt, and a doctor, who had been sent for to attend to the guard, immediately attended to him. I think there was about one minute's interval between the two portions passing my box.

*William Severn* states : I have been 27 years in the service, 25 years a goods guard, and have been stationed at Wakefield 24 years. I commenced duty on Thursday, February 27th, at 5.15 p.m., to work the 5.45 p.m. Wakefield to Rose Grove, and 11.5 p.m. Rose Grove to Wakefield. We arrived at Rose Grove at 10.40 p.m. We left Rose Grove again for Wakefield at 12.50 a.m. on the 28th. My train consisted of 53 waggons and brake-van, i.e., 22 loaded and 31 empties. We stopped at Copy Pit to pin down brakes at 1.15 a.m. I pinned down about five brakes, four double clipper and one ordinary, nearest to my brake-van. I saw one of the enginemen pinning down brakes in the front of the train. I cannot say how many brakes were pinned down in front. Just after leaving Copy Pit I started to get some food, as I usually do when working this train. On approaching Portsmouth I was looking out of my van, as I always do at this point, to see that everything is right, and I saw a red light exhibited from the box. I knew on seeing the red light that something was wrong with our train. On passing the box the signalman called out "You have broken loose." I at once commenced to put my brake on gradually, until I got it tight on. I then held the brake handle with one hand and held a green light out of my van on the six foot side with the other, with a view to keeping the driver going. I continued to look out and exhibited the light all down the bank. My portion of the train seemed to increase in speed, and we ran at a terrific rate between Cornholme and Stansfield Hall Stations. I do not remember anything after passing about Stansfield Hall Station until after the collision occurred. I found myself lying on the ballast close to my brake-van. I cannot say whether I got out of my van

or was knocked out of it. I got up and proceeded as fast as I could to No. 4 signal-box, and when I got there I asked the signalman if anything was coming from Eastwood, and to block all the roads, as my portion of the train had run into the front portion in the tunnel. He said there was nothing coming, and that he had already sent the "Obstruction danger" signal in both directions. I then told him to send at once for the breakdown gangs at Newton Heath and Low Moor. When leaving Copy Pit I always have the brake rubbing, so as to apply it more when necessary. All the signals were off for us from Rose Grove to Portsmouth, but on approaching Stansfield Hall I noticed the signals at danger, and this seemed to upset me altogether, as I made myself sure the train was coming to grief. The fireman told me the train broke loose at the third waggon from the engine, thus leaving 50 attached to my brake-van. I received injuries to my back, left shoulder, and left thigh.

*William Smith*, driver, states : I have been in the service 20 years, and have been a driver for 10 years. On February 27th I booked on duty at 4.35 p.m., to work a goods train from Wakefield to Rose Grove, and the 11.5 p.m. goods train Rose Grove to Wakefield. I should have booked off about 4 a.m. on 28th in the ordinary course. I booked off about 4.50 a.m. on 27th. I have about one and a half hours' interval between the trips at Rose Grove, but I am on the engine all the time. We left Rose Grove at 12.55 a.m., and my train consisted of 53 waggons and brake-van, which was an average load for this train. I came up the bank with the assistance of a pilot engine in the rear, which we detached at Copy Pit. At Rose Grove I had a conversation with the guard, and he told me to stop at the top of the bank, and to pin down four brakes, and he would do the same. This is about the usual number to pin down with this weight of train on this gradient. At Copy Pit I drew my train over the summit slowly, and came to a stand, when the guard's brake had commenced to run on the falling gradient. I pinned down four brakes next to the engine. My engine would be about half way between the advance for Copy Pit and the distant signal for Portsmouth. I got a starting signal from the guard after we had pinned brakes down, and my mate then took off the hand-brake, and we started slowly without steam. Shortly after my engine had passed Portsmouth signal-box I began to be uncomfortable, as I could not see my van lights. It was a very dark night, and rather hazy, and the rails greasy. I then ran as hard as I could until I sighted the distant signal for Stansfield Hall, which was on. The home signal was also on when I sighted it, but it was taken off as I approached it, and I increased my speed. As I was passing Stansfield Hall cabin the signalman gave me a white light and shouted, and I then felt certain that my train was divided. When I sighted the home signal for Todmorden No. 4 it was off, and I was travelling about 10 miles an hour passing this box. My mate made a motion to go on the tender with a light at this point, but I said "You must not go up there," and he seemed to be down in an instant. I cannot say how far he went on the tender. I did not slacken for a light to be put on. In my opinion, if the signals had all been off when I sighted them, I could have kept out of the way of the rear portion of my train. I think my engine was just entering the tunnel as the rear portion ran into us, and the engine was knocked to the other end of the tunnel, and although I

had steam on, it was brought to a stand by the vacuum brake going out, the pipe having been damaged. I looked round and found my mate was not on the engine, and on searching for him, I found him in the tunnel 10 or 15 yards back, just getting up. He told me he had been knocked off the engine. I was not hurt myself, but the fireman was badly cut. I asked him if he was hurt, and he said "Only my face, I think." As this did not appear serious, I sent him to Eastwood to warn the signalman that the up line was blocked, and when he came back he went to Todmorden No. 4 Box, over the top of the tunnel, for the same purpose, and to see where the guard was. I am unable to say how many waggons we had attached to the engine when we broke loose, as I could not see, but when the engine came to a stand at the end of the tunnel it had only about half a waggon to it. My engine was a six-wheels-coupled tender engine with vacuum brake on all wheels of engine and tender, and hand brake on the six tender wheels. I am unable to say exactly what speed I was running at any time, but I ran as fast as I could all the way.

*Inspector Isherwood, Carriage and Waggon Department, Sowerby Bridge, states :—*I arrived

on the scene of the accident at 5.30 a.m. The first two waggons brought out of the tunnel at the Eastwood end had all the links and couplings intact, but one of the links of the trailing couplings of the third waggon had opened out in the bend, the broken link being still on the coupling. The link was a full section 1½ at the fracture. It had no flaw, but the iron looked rather brittle. The number of the waggon was Lancashire and Yorkshire 19385, and it had been loaded with bacon and sundries. As this was the only broken coupling on any of the waggons of the train until some were broken in pulling out the damaged waggons, I am satisfied it was the one which caused the breakloose. The brakes appeared to have been on on four of the waggons next to the engine, but they were so broken up that I cannot speak with any confidence on the subject. On examining the rear portion of the train we found that the brake was on on the van and six of the waggons next to it. The blocks of the van had been hot very recently, but there was no indication of heating on the waggon blocks. I did not find any flat places on the tyres of the van, and there was only a slight flat on one of the wheels of the waggons.

### *Conclusion.*

The circumstances preceding this accident were as follows :—

The goods train in question consisting of engine, 22 loaded waggons, 31 empties and a 10-ton brake-van, an average train the load behind the engine being about 386 tons, left Rose Grove at 12.50 a.m., and it came up the steep incline to Copy Pit with the assistance of a banking pilot engine, which was detached on arrival there at 1.15 a.m. The driver (W. Smith) states he came over the summit slowly, and came to a stand with the whole of his train on the falling gradient, in order that some of the waggon brakes might be pinned down. Smith states that he pinned down the brakes of the four waggons next the engine, and the statement of the guard (who was not well enough to attend the inquiry) made to the Company, shows that he pinned down the brakes on five waggons in front of his van, four with blocks on two wheels, and one with a block on a single wheel. This the driver states was the usual number to pin down with that weight of train on that gradient. The driver states that after receiving a signal from the guard he started very carefully without steam by the fireman releasing the hand-brakes on the tender.

When passing Portsmouth Station box about one mile further on at 1.24 a.m. the signalman noticed that the engine had only three or four waggons attached to it, and he at once gave the "Train divided" signal to Stansfield Hall, the next signal box in advance then open, and also gave the circuit call "Train divided" to the signal boxes on his circuit, viz. :—Stansfield Hall and Todmorden Nos. 3 and 4. Then hearing the remainder of the train approaching he showed a red light from the box and informed the guard that he had broken loose. At this point, according to the signalman's estimate there was about one minute's interval between the two portions, and each was travelling from 15 to 20 miles an hour.

Shortly after passing Portsmouth the driver thought he had broken away from his train, and he then ran as fast as he could to get out of the way of the following waggons. He had to check his speed at Stansfield Hall owing to both distant and home signals being against him, but the home signal was taken off as he approached it, and he states he again increased his speed, but he was only travelling about 10 miles an hour when passing Todmorden No. 4 box, 450 yards beyond Stansfield Hall, and the following waggons caught him up, and collided with the three waggons attached to the engine just in the tunnel, about 300 yards beyond Todmorden No. 4 signal box.

On being warned at Portsmouth that his train had broken loose, the guard put his hand brake hard on, and did all he could to stop the waggons, but as they were then running at a speed of from 15 to 20 miles an hour, on a very stiff falling gradient, it was impossible for him to do so, as there were 44 unbraked waggons in front of his van and of the five rear waggons with their brakes pinned down.

The speed of the runaway waggons increased, and by the time they reached Stansfield Hall Box were, in the estimate of the signalman there, running 50 miles an hour, and



there was only about half a minute's interval between the two portions, and as above stated, the rear waggons collided with the front portion of the train in the tunnel, about 300 yards beyond Todmorden No. 4 box. The detached waggons had run down from Portsmouth a distance of 2 miles 1,594 yards in about five minutes, or an average speed of about 35 miles an hour. Their speed at the moment of collision was probably quite 50 miles an hour and the effect was to pile up the wreckage to the roof of the tunnel. The engine with half a waggon attached was driven through the tunnel and brought to a stand by the vacuum brake, the brake pipe having been damaged.

I do not consider any of the men in charge of the train are to blame in any way for the accident. It would appear at first sight from the evidence of the signalman that the driver had not run as fast as he might have done after getting the home signal off at Stansfield Hall, but as he was aware that he had a divided train, and had already run as fast as he could from Portsmouth to Stansfield Hall, I think it may be taken as certain that he did his best to keep ahead of the runaway waggons.

The fireman is to be commended for his conduct after the accident, as, although badly hurt (he was unable to attend the inquiry), he went forward to Eastwood, the signal-box in advance, to warn the signalman there, and then returned over the top of the tunnel to see what had happened to the guard and to warn the signalman at Todmorden No. 4 box.

On examination of the waggons after the accident it was found that the brake was on the van and on six of the waggons next to it, but the waggons next to the engine were so broken up that the inspector could not say how many had been braked down; but the driver's statement is quite clear that four had their brakes pinned down, and these two lots, together with the brakes of the engine, were quite sufficient for the safety of the train coming down the incline had no break-loose occurred.

The only broken link found was the end link of the trailing coupling of the third waggon (one belonging to the Company), which was broken at the bend, the drawbar hook of the 4th waggon having pulled through it. I inspected the broken link, the fracture was a clean break, and there was no sign of a previous flaw.

The link was of very best wrought iron, 1½ inches in diameter, and apparently had not been in use for very long, as it showed no signs of wear; but the fracture was very crystalline in appearance, the original fibrous nature of the metal having gone. This change in the nature of the metal is no doubt due to the constant blows coming on the couplings during shunting operations, and the Company's officers informed me that whenever a waggon is returned to the shops for repairs the couplings are annealed, in order to restore a fibrous character to the metal.

In this case I consider that in all probability the link that broke was damaged before the train left Rose Grove, and would have failed some time before reaching the summit at Copy Pit had the train not been hauled up to that point by a pilot engine, and that it actually became disconnected when the train started from Copy Pit after the brakes were pinned down, as the engine and three waggons passed Portsmouth about a mile beyond where it stopped a minute ahead of the remainder of the train.

The engine was one of the Company's standard goods A class, engine, weighing 69 tons, a type first built in 1889, the engine in question being built in 1895. The train was not a very long or heavy one, and was similar to those usually running on that part of the line, and the couplings were of the standard pattern.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
E. DRUITT,  
Major, R.E.

#### APPENDIX.

##### PARTICULARS OF DAMAGE TO STOCK.

Lancashire and Yorkshire waggon, No. 19,385.—One sole-bar, one middle-bearer, one side plank, two end planks, one longitudinal, two headstocks, four end posts, two side rails, four axle-boxes, four axle-guards, one end plate, one coupling link and bottom planks, broken; four buffer rods, four corner plates, brakework, &c., bent; and one wheel tyre broken; and one axle bent.

Lancashire and Yorkshire waggon, No. 3,943.—One headstock, two end planks, two quarter planks, two end posts, one buffer casting, one buffer head, one end plate, four axle-boxes four

axle-guards, and one end top plate, broken; two corner plates, buffers, and brakework, bent.

Lancashire and Yorkshire waggon, No. 23,490.—Two headstocks, three end planks, one under-strap packing, two long door planks, two axle-boxes, one side top plate, and two brake blocks, broken; four buffer-rods, two end knee irons, one sole-plate, journals, one axle, bent; one sole damaged, door hinges strained.

Lancashire and Yorkshire waggon, No. 27,431.—One sole, one side rail, two headstocks, six end planks, six quarter planks, three axle-boxes, three

side diagonal straps, one draw-hook, broken; one brake-guard, two knee irons, two drawbars, three end door bands, four axle-guards, four buffer-rods, bent.

Lancashire and Yorkshire box waggon, No. 5,839.—One headstock damaged; one headstock, two end door planks, two axle-guards, broken; two axle-guards and brakework bent.

Lancashire and Yorkshire covered goods van, No. 27,292.—One headstock, all roof boards, twelve boards, three end posts, twenty side boards, two top rails, two axle-boxes, one axle-guard, broken; one headstock damaged; two sole-bars split; three axle-guards bent; body knocked out of square and off the road.

Lancashire and Yorkshire covered goods van, No. 18,030.—One sole, one middle-bearer, and wheels good, rest of frame and body smashed.

Lancashire and Yorkshire waggon, No. 5,389.—Two headstocks, four end planks, six side door planks, two end posts, two diagonals, two axle-boxes, one rocking shaft, one top plate, broken; four buffer-rods, brake lever, V irons, door hinges, four axle-guards, bent; bottom planks displaced and off the road.

Grimethorpe colliery waggon, No. 138.—Two soles, two headstocks, one side rail, seven end planks, six long side planks, two end posts, seven door planks, two buffer castings, one axle-box, two side straps, eleven quarter planks, all broken; four axle-guards, end door bar, end door hinges, bent; waggon off the road.

Lancashire and Yorkshire waggon, No. 3,914.—One side rail, four end planks, four end posts, one top plate, two corner plates, one headstock, two quarter planks, one bearing spring-shoe, one buffer casting, one buffer head, and one eye bolt, all broken; two corner plates, three buffer rods, bent; one side rail damaged, and top plate bent; off the rails.

North Eastern waggon, 60,582.—Two soles, a headstock, two middle-bearers, two end posts, four end planks, one middle longitude, two corner plates, four axle-guards, one side rail, two side quarter-planks, one side knee, all broken; one side rail badly damaged; brakework badly bent; three side knees bent.

North Eastern waggon, 96,763.—Two headstocks, one end plank, broken; one end top plate, two brake levers, bent; side rail badly damaged; one sole badly split; two axle-boxes broken; bottom planks displaced; two axle-guards broken, and two badly bent; and one pair of wheels knocked from under.

North Eastern waggon, No. 88,114.—One headstock, one end plank, three end posts, one diagonal, six bottom planks, all broken; one headstock split; one side plank badly damaged; one side top-plate, coupling link, two drawbars, four buffers, one rocking shaft, four axle-guards, one end top iron, two corner plates, and one brake lever, all bent; two V irons broken; and one axle-box broken.

North Eastern waggon, 27,389.—Two headstocks broken; three end posts damaged; one buffer casting broken; one long frame bolt broken.

North Eastern waggon, 35,592.—One headstock badly damaged; four end posts badly damaged; one side rail damaged; four end planks grazed; two axle-boxes broken; four side knees bent; four axle-guards bent; hand rail bent; brake-guard and drawbars bent.

Bolton Coal and Cannel Company's waggon, No. 79.—One sole, one headstock, one side rail, two long side planks, 10 quarter planks, five end door planks, two axle-boxes, one spring shoe, one buffer-head, three buffer-shoes, one end door band, all broken; one brake guard, four axle-guards, three buffer rods, two door bands, four door straps, three side stays, bent.

North Eastern Railway waggon, No. 12,893.—One sole-bar split; four end planks, two end posts, headstock, one corner plate, three axle-boxes, and one axle-guard broken; buffers, axle-guard, &c. bent.

North Eastern Railway covered goods, No. 91,036.—Body and roof completely smashed; two headstocks badly damaged; two middlebearers and two longitudinals damaged; one axle-box broken; and buffers, &c. bent.

North Eastern Railway waggon, No. 40,120.—Two headstocks, one side rail, three end posts, four end planks, one diagonal, 15 bottom planks, four axle-boxes, one buffer casting, four diagonal knees, one end top plate, and one drawbar broken; one brake-guard, brake-work, four axle-guards, four buffer rods, and three end strips bent.

Burnley Coal Supply Company's waggon, No. 16.—One end post badly damaged, and one end plate bent.

J. Delaney's waggon, No. 557.—Two side rails, seven end planks, five quarter planks, four side planks, two side door planks, broken; one headstock split; four side knees, four buffer rods, and four axle-guards, bent; also brakework strained; two axle-boxes, one spring shoe, one buffer shoe, two side diagonal straps, and one cross rod, broken; one diagonal damaged, and bottom planks displaced.

North Eastern waggon, No. 10,186.—Broken up.

North Eastern waggon, No. 18,853.—Broken up.

North Eastern waggon, No. 61,428.—Broken up.

Bolton Coal and Lime Company's No. 193.—Broken up.

Lancashire and Yorkshire waggon, No. 25,805.—Broken up.

Lancashire and Yorkshire waggon, No. 8,120.—Broken up.

Lancashire and Yorkshire waggon, No. 3,373.—Broken up.

Lancashire and Yorkshire waggon, No. 12,952.—Broken up.

Lancashire and Yorkshire waggon, No. 11,357.—Broken up.

Lancashire and Yorkshire waggon, No. 1,000.—Broken up.

Lancashire and Yorkshire waggon, No. 9,232.—Broken up.

Lancashire and Yorkshire covered goods, No. 18,030. Broken up.

North Eastern covered goods, No. 91,036.—Broken up.

#### DAMAGE TO PERMANENT WAY.

14 30-ft. rails, 66 chaired sleepers, 32 fish plates, 64 fish bolts, and 134 keys, broken.

Printed copies of the above Report were sent to the Company on the 27th March.



## NORTH BRITISH RAILWAY.

Board of Trade, Railway Department,  
8, Richmond Terrace, Whitehall, London, S.W.,  
March 1st, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 30th January, the result of my inquiry into the cause of the collision, which occurred on the 24th January, about 9.15 a.m., between two brake vehicles and a passenger train near Cowlairs Station, on the North British Railway.

In this case, the 9.10 a.m. passenger train (ex Queen Street) had just been brought to a stand at the platform at Cowlairs Station, when two special brake vehicles, which had been unslipped, collided with the rear brake van of the train.

Six passengers complained of slight injuries in the shape of cuts and bruises, and some damage was occasioned to rolling stock. The details of this damage are given in the Appendix.

The passenger train consisted of a four-wheels-coupled tender engine, a four-wheeled horse-box, and eight six-wheeled coaches, and was fitted with the Westinghouse automatic brake.

The two brake vehicles had each four wheels, and weighed between 14 and 15 tons each. They were fitted with hand brakes, and were of the low-sided type used only for the purpose of braking trains on the incline between Queen Street and Cowlairs Stations.

#### *Description.*

The scene of this accident was the head of the incline between Queen Street and Cowlairs Stations. The up and down lines between these stations are straight, and have a general south-west and north-east direction.

The total length of the incline is about 2,090 yards, and the gradients are severe, varying from 1 in 50 to 1 in 41½. The foot of the incline is about 45 yards from the eastern extremity of Queen Street Station, and the head of the incline about 180 yards from the western extremity of Cowlairs Station. From the head of the incline the gradient rises at 1 in 277 for a distance of 189 yards. Thence the line is practically level through Cowlairs Station. The actual point of collision was about 164 yards from the head of the incline, and 16 yards from the western termination of the Cowlairs Station platform.

From near the foot of the incline eastward the lines run in tunnel for a distance of 997 yards.

Trains before starting out of Queen Street are attached to an endless wire rope, and are assisted up the incline by a stationary engine, which winds the rope over pulleys. The stationary engine house is situated on the south of the lines of way immediately facing the main pulley, and about 45 yards from the west end of Cowlairs Station. A good view is obtainable from the engine house of the head of the incline. Trains are attached to the incline rope by means of a steel "messenger" chain, which is lashed to the incline rope at any desired point. To the buffer beam of engines is fixed a draw-hook, point downwards. A link of the messenger chain is passed under this hook, and, so long as a pull on the train is maintained by the movement of the incline rope, the chain remains in position. When the train reaches the head of the incline the stationary engine is stopped, and the speed of the main rope slackens and allows the messenger chain to drop off the draw-hook, and the train is then free to proceed on its way without any slackening of speed.

To the rear of all trains travelling up the incline are attached from two to three special brake vehicles, each in charge of a trained brakesman. These vehicles weigh from 14 to 15 tons each, and are provided with powerful hand brakes. Descending trains are braked down the incline by a similar number of these brake vehicles attached to the front of the train, the engines in this case having been previously uncoupled.

The special instructions regarding the working of trains on this incline are to be found in the Company's Appendix to the Working Time Table, pp. 14 to 16.

The arrangements have been in force now for about sixty years, and have heretofore been found to work satisfactorily.

#### *Evidence.*

*Robert Henderson*, driver, states: I have had 44 years' service with the North British Railway Company, and have been a driver about 39 years.

My hours of duty on the 24th January were from 9.0 a.m. till 9.40 p.m. I was driving the 9.10 a.m. passenger train ex Queen Street on that day.

My engine was a four-coupled tender engine, fitted with the Westinghouse brake, working blocks on the four coupled engine, and on the six tender, wheels. I have a very large experience of taking trains out of Queen Street Station up the incline. We apply steam the whole way up the incline to assist the stationary engine. Drivers are not responsible for the attachment of the messenger rope to the incline rope, or to the train engine. I had eight coaches and a horse-box on my train, and it was a light rather than a heavy train. There was nothing unusual in the passage of the train from Queen Street to the top of the incline. My train was not booked to stop at Cowlairst Station, and I therefore kept steam applied with the intention of running through the station. We sometimes hear the noise of the messenger chain as it drops off the engine hook when the stationary engine ceases to work. In the case of a heavy train there is also, at this moment, a check in the speed of the train. On the morning in question I noticed neither of these occurrences. But as I had been up the incline many thousands of times with no mishap, I assumed that as usual the stationary engine had ceased, and the messenger chain had dropped. I noticed nothing wrong until my engine reached the stationary engine-house, when I heard a crash, and the engine began to lurch rather violently from side to side. I shut off steam, and applied the brake gently, not knowing what had happened, but thinking the engine was off the road. The lurching ceased, and I had run about two train-lengths before coming to a stand, when I felt a shock from behind. It immediately occurred to me that the incline brakes had run into my train. I got off the engine, and went to the rear of the train, and found some couplings broken, but no wheels derailed. The reason I came to a stand after the lurching had ceased, which it did almost immediately, was because I thought some damage might have occurred to the engine. It did not occur to me that a collision might result with the incline brakes. I have never known any previous accident of this description in connection with the messenger rope. I have known the messenger rope slip just on starting from Queen Street Station, and also cases when a light train has over-run the incline rope, and thereby caused the messenger chain to fall off.

*James Steel*, fireman, states: I have had 12 years' service with the Company. My hours of duty on the day of the accident were the same as those of driver Henderson. I had no reason to suppose that the messenger chain had not dropped off at the usual point. I heard a crash in the timbering opposite the stationary engine-house, and saw the wood flying, and the engine rocked violently. I thought it might have been due to the messenger chain not having been disconnected. My driver shut off steam and applied the brake gently. Our speed might then have been about 10 miles an hour. After we came to a stand I felt the shock of something striking the rear of the train. I did not know what it was at the time. I have never known a collision to occur previously from the same cause.

*Duncan Kennedy*, passenger guard, states: I have 33 years' service with the Company. My hours of duty on the 24th January were from 9.10 a.m. till 6.40 p.m. I was guard of the 9.10 a.m. passenger train ex Queen Street on the day of the accident. There were eight six-wheeled coaches, and one four-wheeled horse-box on the train. The latter was next the engine. Out of the 52 wheels, 36 wheels were braked. I was

riding in the rear composite brake-van. I noticed nothing wrong until the train came to a stand at the platform at Cowlairst Station. Almost immediately after coming to a stand the incline brakes ran into the train, and I fell over a parcel standing on the floor behind me. The collision was not at all severe, and if it had not been for the parcel, I do not think I should have fallen. I got out of my brake-van and looked out for the station-master. Three of the passengers complained to me of being hurt. The only damage to the train which I noticed was to one of the rear buffer castings of my brake-van. I have never known a case of a non-stopping train as this was coming to a stand at Cowlairst Station, and have not experienced any collision of this sort previously.

*Mr. Chalmers*, assistant locomotive superintendent, states: I happened to be on the up platform at Cowlairst facing north when I heard a heavy crash behind me. On looking round I saw the cover boards of the main pulley of the incline flying pretty high in front of the engine, and the engine was rocking badly. In fact I thought she was off the road. The next thing I heard were the brakes crashing into the rear of the train. I walked forward to get hold of the station-master and found his assistant. I then went back to the end of the train and heard some of the passengers calling out. The doors were opened and five or six passengers were removed to the waiting room and attended to. Their injuries were not serious, consisting of either slight cuts or bruises. I have heard that a case has occurred previously of the stationary engine failing to be stopped at the right point, and the messenger chain consequently being pulled over the main pulley. In that case no damage was done as the messenger rope actually dropped off the engine-hook before the covering boards over the pulley were reached. In my opinion this accident now under consideration was due to the stationary engine being allowed to wind longer than it should have been, and the covering boards over the main pulley were consequently torn up by the messenger chain being still attached to the engine. It is the universal custom for two incline brakes at least to be attached to all passenger trains leaving Queen Street. This rule has been in operation since the year 1842. I think it is a necessary rule from the point of view of safety, in case a failure of the messenger chain or incline rope should occur when the train is in the tunnelled portion of the incline, where the smoke and the thickness of the atmosphere would render it a matter of difficulty to send assistance either from Cowlairst or Queen Street.

*Alexander Terriss*, brakesman, states: I have 22 years' service and have been employed as an incline brakesman for nearly 20 years. My hours of duty on the 24th January were from 4.15 a.m. till 2.15 p.m. I was in the rear of the two incline brakes attached to the 9.10 a.m. train out of Queen Street. There was another brakesman in the front brake. The brakes average 14½ tons each and are fitted with hand-brakes acting on all four wheels. It is my duty to jump off the rear brake at the bank head, at the point where the messenger chain usually comes to a standstill after dropping off the engine-hook. My work is then to disconnect it from the incline-rope. The front brakesman unslips the incline brakes from the train in the case of non-stopping trains. On this occasion I jumped out at the usual point, when our speed might have been from 10 to 12

miles an hour. At that moment there would be about three or four yards separating the brakes from the train. Up to that time there was nothing to show me that anything had gone wrong. I saw the incline-rope moving when I reached the ground, and then knew that the messenger must have been wound over the pulley. There are no rules as to the interval that must be preserved between the incline-brakes and a passenger train after the former have been slipped. On the day in question the rails were wet. If the rails are dry a single brakeman could stop two incline brakes in about 15 to 20 yards when moving at a speed of 10 to 12 miles an hour. I have known one or two slight collisions occurring when the incline-brakes had been newly slipped, but never a case of this description. The cases in which I have had to take a train back into Queen Street owing to the messenger chain slipping or failing are exceedingly rare. I do not think that the total number of cases in my own experience would exceed ten. There are now ten pairs of brakemen working on the incline. I do not think that a passenger train equipped with the Westinghouse automatic brake would run any risk on the incline on the upward journey even if there were no incline brakes attached. There were two other men on the incline brakes on this journey. I thought one of these had a general pass as an engine-driver; the other man, a ticket collector, told me he had asked the station-master at Queen Street, and had been given leave to travel on the brakes.

*Angus McNiven*, brakeman, states: I have 2½ years' service, and have been an incline-brakeman for 1½ years. My hours of duty are similar to those of the last witness. I was brakeman on the front incline-brake with the 9.10 a.m. passenger train on the 24th January. It was my duty to slip the brakes, and on this occasion I did so. The train was a light one, and, consequently, I slipped earlier than I should have done with a heavy train. After knocking out the pin I applied my hand-brake to check the speed whilst my mate jumped off the rear brake, and then eased it off again to allow the brakes to run on behind the train over the points. I did not notice the passenger train was slackening speed until just before she came to a stand, when there might have been a distance of 10 to 15 yards separating the train from the brakes. I immediately applied my hand-brake but could not succeed in avoiding a collision. The senior brakeman always descends to unfasten the messenger-chain, and the junior remains on the incline-brakes. I have not known a similar accident to occur in my experience. There was a driver and also a ticket collector on the brake with me, and we all saw the passenger train coming to a stand at the same time. The latter helped me to apply the hand-brake. I am aware of the rule forbidding anyone but the brakemen to ride on the incline brakes without a pass.

*Joseph Beagrie*, temporary stationary engine-man, states: I have about 22 years' service, and have been doing duty in place of the senior engine-man since October, 1901. Under ordinary circumstances, my duties are in connection with the boilers. Steam is applied to the stationary engine when the signalman whistles three times to show that he has received the message from Queen Street that the messenger chain has been properly attached to the engine of a train. The

indicator in the engine-room, reading up to 100 revolutions, indicates to us the position of the train on the incline. We decide as to the moment when steam shall be shut off from the stationary engine in accordance with the number of revolutions necessary. In the case of a light train, we would shut off steam about two revolutions short of 100. In the case of a heavy train, we would allow the stationary engine to assist the train engine as long as possible, and give as many as 104 revolutions as a maximum. We judge as to the weight of the train by the speed at which the stationary engine works. A light train will take about four minutes coming up, whilst a heavy train will take from six to seven minutes. I remember the 9.10 a.m. train being signalled as ready, and applied steam to the stationary engine. The train was not a very light one, and may be described as of average weight. After applying steam my attention was taken up with putting oil into oil-cups. The first thing I observed was the extra high speed of the engine, and looking at the indicator, I saw that steam should have been shut off earlier, as the indicator showed about 107 revolutions. This is the reason why the messenger-rope did not disconnect from the train engine. I saw the timber flooring over the main pulley flying after I shut off steam, or about the same time. The train may have been about half-way up the incline when I commenced oiling. I cannot explain why I should have allowed my attention to be taken off by oiling work which I could have done at any time.

*John Wilson*, driver, states: I was travelling on the front incline-brake on the day in question. I know there is a regulation forbidding anyone travelling on the brakes without a pass. I saw the brakeman slip the coupling. He then got up and applied the brake-handle, and then released it again. I noticed the passenger train was coming to a stop, and called out to the brakeman that the train was drawing up. He was standing at the time holding the brake-wheel. He did not make any reply, but applied the brake. I should think there was an engine's length—about 48 feet—between the brakes and the rear of the train when I noticed the train was stopping.

*James Bell*, ticket collector, states: I was travelling on the front incline-brake behind the 9.10 a.m. train on the 24th January. I had not a pass. I saw the brakeman unslip the coupling and then apply his hand-brake to allow his mate to get off the rear brake. I noticed the passenger train drawing to a stand when we were about 14 yards behind it, and I began using the spare brake-handle to assist the brakeman. But we failed to avert a collision. I did not speak to the brakeman. He shouted something, but I could not say what it was he said.

*George Davidson*, traffic inspector, states: On account of the danger in either sending an engine down from Cowairs, or in sending incline brakes up from Queen Street, in the case of a train, owing to slipping or failure of the messenger-rope, coming to a stand on the tunnelled portion of the incline, I think it is necessary to have incline-brakes attached to the rear of passenger trains ex Queen Street. It is so difficult to see inside the tunnel that collisions might occur if an engine were sent in to assist a train that had come to a stand in the tunnel. The tunnel is a little more than half the whole length of the incline, which is about 1½ miles in length.

*Conclusion.*

The statements made by Beagrie, who was temporarily in charge of the stationary engine at the head of the incline, and by driver Henderson fully explain the primary cause of this accident.

The former admits that he failed to stop the stationary engine at the right moment, *i.e.*, when the train had been drawn up to the top of the incline. The speed of the incline rope therefore did not slacken, and the messenger chain being thus kept taut failed to drop off the drawhook of the train engine. When the latter reached the boarding in the four-foot way which covers the main pulley, the messenger chain, being still attached to the incline rope, and to the drawhook of the engine, ripped off the planking, and thereby caused the engine to oscillate from side to side.

At this moment Beagrie appears to have recognised the state of affairs and stopped the stationary engine. The messenger chain became unhooked, and the train was free to proceed.

Driver Henderson explains that he was alarmed at the severe oscillation of his engine, and therefore proceeded to bring the train to a stand at Cowlairst Station platform with a view to ascertaining what damage had resulted.

In the meantime, as the train was not booked to stop at Cowlairst Station, brakesman McNiven had uncoupled the two incline brake vehicles in rear of the train at the usual point, and then permitted the brakes to follow the train with the intention of bringing them to a stand after they had cleared the trailing points leading to the siding. The sudden stoppage of the train in front of him appears to have been quite unexpected, and he failed to prevent the two brake vehicles colliding with the brake van in rear of the train.

I find therefore that Beagrie is mainly responsible for this accident in that he allowed his attention to be diverted from the position of the train and thereby failed to stop the incline engine at the right moment.

I do not think that McNiven can be held altogether free from blame in his conduct of the incline brakes. At the moment when the train in front of him was coming to a stand, there was, it appears, an interval of from 14 to 16 yards separating him from the train, and he had some 40 yards only to run before clearing the brakes siding points. Had his speed been correspondingly reduced and his attention fully given to his work, the collision, in my opinion, might have at least been very much minimised.

The Company's Regulation No. 5, relative to the working of the incline, lays down that no person is allowed to ride on the incline brakes without a printed pass. It appears to require enforcement. The necessity of attaching these incline vehicles to ascending passenger trains is open to doubt. If a failure of the incline rope or messenger chain occurs, the brake power on any such train will be sufficient to hold the train from any risk of running back. But in sending out incline brakes in such a case as might be necessary to take the train back to Queen Street Station, a risk of a collision if the failure occurred in the tunnel would be incurred. Having in view the long and sustained immunity from accidents on the incline, I do not think there is cause to disturb the existing arrangements.

I can only suggest that where incline brakes are slipped from the rear of trains at the head of the incline, some more definite instructions as to the interval to be preserved by, and the speed allowed for, the brakes, should be included in the Company's Appendix.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

**APPENDIX.****PARTICULARS OF DAMAGE TO PLANT.**

North British engine, No. 601.—Stays of rope-guard bent.	headstock, 2 buffer casings, 1 corner plate, and 1 screw coupling destroyed.
North British brake, third-class, No. 1,137.—One	North British composite, No. 92.—Two buffer casings broken and 1 corner plate damaged.

Printed copies of the above Report were sent to the Company on the 27th March.

## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.

16th April, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 3rd April, the result of my inquiry into the circumstances under which a collision occurred at about 3.40 p.m. on the 24th March, near Milford Junction on the North-Eastern Railway, between a passenger train and a light engine.

In this case, as the 3.5 p.m. up passenger train from York to Normanton, consisting of an engine and six vehicles, was running into Milford Junction Station on the up platform line, it was run into by a light engine which was backing into the station along the down Hull line.

The light engine just struck the trailing end of the engine of the passenger train without derailing it, and then fouled the next four vehicles of the train, which were all derailed, the second of them being overturned on to its side; the remaining two vehicles of the train were uninjured. The light engine itself was somewhat seriously damaged, but the engine of the passenger train was practically uninjured.

Fortunately there were very few passengers in the train, and only one of these has complained of having received any personal injuries.

The engine of the passenger train was a four-wheels-coupled side tank engine, fitted with the Westinghouse automatic brake working blocks on the four coupled wheels, and with a hand brake working the same blocks.

The train consisted of the following vehicles attached to the engine in the order given :—

	Wheels.
1 van ... ..	6
1 third class carriage ... ..	6
2 composites ... ..	6
1 third class carriage ... ..	6
1 van ... ..	6

These vehicles were all fitted with the Westinghouse automatic brake working blocks on four wheels of each vehicle.

The light engine was a six-wheels-coupled tender engine, fitted with a steam brake working blocks on the six coupled wheels and on the tender wheels, and with a hand brake working the blocks on the tender wheels.

All the brakes are reported as having been in good working order.

Details of the damage done to the rolling stock are given in the Appendix; that to permanent way was very slight.

#### *Description.*

Milford Junction, near which this collision occurred, is a station on the North-Eastern Railway main line from York to Normanton, and it is the point where the line to Hull branches off to the eastward.

The station consists of an island platform running approximately north and south, and having an up platform line on its eastern side and a down platform line on its western side. The passenger train to which this accident occurred was running into the station from the north along the up platform line.

Just to the north of the station the double line to Hull branches off to the eastward, and there is a connection leading from the station down platform line to the down Hull line; this connection crosses the up platform line just to the north of the station platform, and it was at this crossing that the collision occurred.

Just to the eastward of this through crossing is a slip connection leading from the up platform line to the down Hull line, and a short distance to the north of the through crossing is an engine turntable with a connection leading on to the up platform line.

The light engine concerned in this collision was running from the turntable to the down platform line. To accomplish this object it had to run first on to the up platform line, then through the slip connection on to the down Hull line, and then to back along the down Hull line on to the down platform line. It was in carrying out this last movement, which entailed crossing the up platform line that the collision occurred. There are signals provided for all the above operations, the backing signal along the Hull down line being situated about 110 yards to the eastward of the through crossing.

### *Evidence*

*W. Piercey*, driver, stated : I have been in the service of the Company 18½ years, during three or four of which I have been a driver. I came on duty on the 24th March at 11.25 a.m. to work until 9.25 p.m. I had not been on duty at all on the previous day. My engine was a six-wheels-coupled tender engine fitted with the steam brake, working blocks on the six coupled wheels and the tender wheels, and with a hand brake working blocks on the tender wheels. I took charge of the engine at Normanton at 2 p.m. and brought it to Milford Junction. I brought a coal train from Normanton and left it standing on the through main line. From Normanton to Milford Junction I had been running tender first, and when I arrived at Milford Junction I uncoupled my engine in order to take it to the turntable to reverse it. I took the engine to the turntable and reversed it. There is a ground disc for leaving the turntable leading on to the up main line. This disc signal was pulled off for me, and accordingly I took my engine to the up platform line, just beyond the points leading to the down Hull passenger line. I then got the disc for going back over the points leading to the down passenger line. I acted in accordance with this signal and took my engine on to the Hull down passenger line. I brought my engine to a stand about 10 yards beyond the points, *i.e.*, just on the down Hull passenger line. There is on this line a backing signal for backing along the Hull down passenger line. I cannot distinctly say where I was with reference to that signal, but I think the funnel of my engine was about opposite to it. The signal was not lowered for me. I saw the points changed, and I then gave the engine steam and let her run back along the Hull down passenger line. I got no signal at all for doing this. My explanation for doing so is that I saw the points shifted, and I forgot all about the signal altogether. I quite admit that I made a mistake, and that I alone am responsible for the accident. I did not see the passenger train approaching on the up platform line until the collision was just about to occur. I applied the steam brake at once—steam was shut off at the time. My brakes acted well, and they were in good working order. The end of my tender just came in collision with the engine of the passenger train and then fouled the three leading vehicles of the train. I was not travelling more than three or four miles per hour at the time of the collision. I estimate the speed of the passenger train at about 18 miles per hour. Neither my fireman or myself was injured at all. I cannot state exactly how long my engine was kept standing near the backing signal on the down Hull line; it may have been two minutes. I did not see the points actually shifted, but I looked and saw that they had been shifted, and so I then backed my engine.

*Albert Hardgraves*, fireman, stated : I have been about six years in the service of the Company, during about 3½ years of which I have been a fireman. I came on duty on the 24th March at 4.10 a.m. to work until 2.10 p.m. I should have been relieved at 2.10 p.m., but my relief had not arrived owing to his having missed his train, and I had to remain on duty in his place, and I did not actually come off duty until 7.50 p.m. I was with driver Piercey on the engine which brought the coal train from Normanton to Milford Junction, and I went with him on to the turntable to reverse the engine. I remember that we got the

disc signal for leaving the turntable, and we then got the disc for backing from the up platform line to the down Hull line, and I remember my engine being brought to a stand on the latter line. I know the signal which there is on the down Hull line for backing along that line. We never passed that signal, but stopped short of it just over the points. I remember the engine being backed along the down Hull passenger line, but I did not see that we got any signal for doing so. I cannot say whether the regular backing signal was lowered. We had not got any hand signal from the signalman. I did not see the passenger train until the collision actually occurred. Just as the accident was occurring I saw that the driver was applying his brake. I was not injured by the collision.

*Walter Eastgate*, driver, stated : I have been 40 years in the service of the Company, during 30 of which I have been a driver. I came on duty on the 24th March at 2.5 p.m. to work until 12.35 a.m. I had previously come off duty at 2 a.m. on the 24th March. I was driving the 3.5 p.m. passenger train from York to Normanton. My engine was a four-wheels-coupled side tank engine fitted with the Westinghouse automatic brake working blocks on the four coupled wheels, and with the hand brake working blocks on the same wheels. My brakes were in good order. I think that we left York punctually, and we were running to time when we approached Milford Junction. The distant signal from Milford north box had been against us, but the other signals at Milford north had been "off" for us. The distant for the Milford platform signal box was "off" for us, and the Milford platform "home" was also "off" for us. I accordingly ran past that home signal at a speed which I estimate at about 17 or 18 miles per hour. When I was about 30 yards from the crossing I saw the light engine on the down Hull line, and I then saw that it was on the move towards us. Steam at this time was turned off, so I at once applied my brake, but the collision at once occurred. The tender of the light engine hit the rear of my engine. My engine was not derailed, but four of the vehicles behind my engine were derailed. I cannot say what speed the light engine was going. I did not notice whether the backing signal on the down Hull line had been lowered for the light engine. I was not injured at all by the collision. It would have been quite impossible for me to have stopped my train before crossing the down Hull line. I was keeping a good look out at the time. The first time that the light engine attracted my attention was when it was very near my line. My engine was travelling bunker first. There was a coal bunker in front of me, but there was not sufficient coal in it to interfere with my view in front of me. There was nothing on the engine itself to interfere with my view of the light engine.

*Thomas Martin*, signalman, stated : I have been 24 years in the service of the Company, during the whole of which I have been a signalman. I am employed in the Milford platform signal box, where I have been stationed for about 2½ years. I came on duty on the 24th March at 2 p.m. to work until 10 p.m. I had previously come off duty at 6 a.m. on the 24th March. I remember the light engine arriving from the Milford north cabin on the afternoon of that day,



and about one minute after its arrival I arranged for it to go on to the reversing table. I saw the engine turned, and as soon as it was turned I gave it the disc signal to run from the reversing table on to the up platform line, and it came to a stand just beyond the points leading to the Hull down passenger line. I then shifted the points for it to run on the Hull down passenger line and gave the driver the disc signal for doing so. It ran on to the Hull down passenger line, and I saw it come to a rest on that line. It came to a rest with both the engine and tender behind the backing signal. I could see the signal itself, and I could see the tender, but I could not see the engine on account of the transshipping shed, and from this fact I knew that the engine was past the signal. It was at 3.34 p.m. that the light engine came to a stand at this point. I had not lowered the signal for it to back along the down passenger line. At that time there was another train arriving at the down platform line, and on that account I could not back the light engine along the down platform line. At that time I had not accepted the 3.5 p.m. train from York. At 3.36 p.m. the north box offered me the 3.5 p.m. York to Normanton train. I accepted it at once. At 3.39 p.m. I received "Train entering section" signal for it. At 3.36 p.m. I offered the 3.5 p.m. train to the south box. He accepted it at once. The south box then lowered his home and distant for it, and as soon as he had done so I lowered my home and distant also. I saw the 3.5 p.m. train approaching my box, but I was then engaged at the other end of the signal box, and saw nothing of the collision until it was just on the point of occurring. At that time the backing signal along the down Hull line was still at danger, and it had never been lowered since the engine had come to rest near it. It was at 3.40 p.m. that the collision occurred. The light engine must have stood near the backing signal for about five minutes. It is not possible for the up platform home signal and the backing signal along the down Hull line to be lowered simultaneously. The down train from Normanton arrived at the down platform at 3.36 p.m.

*C. Rush*, guard, stated: I have been about 16 years in the service of the Company, during four or five of which I have been a guard. I came on duty on the 24th March at 7.15 a.m. to work until 6.15 p.m. I came off duty at 6.15 p.m. on the 23rd March. I was guard of the 3.5 p.m. passenger train from York to Normanton. My

train consisted of six vehicles attached to the engine in the order given:—

	Wheels.
1 van ... ..	6
1 third ... ..	6
1 compo. ... ..	6
1 " ... ..	6
1 third ... ..	6
1 van ... ..	6

All the vehicles were fitted with the Westinghouse automatic brake working blocks on four wheels of each vehicle, and the brakes were in good order. We left York at 3.5 p.m., and we were about one minute late when we approached Milford Junction. I was standing up in my van at the time, and the first I knew of the collision was being thrown down by the shock. I did not see the light engine before the collision occurred. I saw the Milford platform signal box home signal before the collision occurred, and I saw that it was off for us. I estimate our speed at the time of the collision at somewhere about 20 miles per hour. The four leading vehicles of my train were derailed. There were about six passengers in the train, but none complained to me about having received any injuries, but I understand one complaint was made to the stationmaster.

*George William Croft*, fireman, stated: I have been about 10 years in the service of the Company, during about 6 of which I have been a fireman. I came on duty at 2.5 p.m. on the 24th March to work until about 12.30 a.m. I came off duty about 12.30 a.m. on the 25th March. I was acting as fireman to driver Eastgate, and I was with him on the 3.5 p.m. train. I remember approaching Milford Junction station. All the signals were "off" for us to run into Milford Junction except the distant at the Milford north box. I was at the right hand side of my engine, and saw nothing of the light engine until the collision actually occurred. I estimate our speed at the time at between 15 and 20 miles per hour. I do not think my driver saw the light engine before the collision occurred. Steam had been shut off at the north box, and had not been turned on again. Just about the time the collision occurred the driver applied the brake, but I cannot say whether he applied it before the collision. We were travelling bunker first. There was no coal piled up in front of me which interfered at all with my view of the line.

### Conclusion.

From the above evidence it is clear that this collision was entirely due to the fact of driver Piercey having backed his light engine along the down Hull line while the backing signal specially provided for that operation was at danger.

Driver Piercey had brought a coal train from Normanton to Milford, and, as the engine had then to be turned, it was uncoupled from its train and taken to the turntable at the north end of the station. When the turning operation was completed the engine had to return to the down platform line, and for this purpose it was necessary for it to run, first, from the turntable on to the up platform line; secondly, from the up platform line to the down Hull line; and finally to back along the down Hull line on to the down platform line. For each of these three operations special signals are provided, and, as pointed out above, the last movement necessitated the engine running through a through-crossing on the up platform line.

The first two movements were correctly carried out, and at 3.34 p.m. the light engine came to a stand on the down Hull line preparatory to backing along that line on to the down platform line. At this moment, however, signalman Martin, who was on duty in the Milford platform signal box, and under whose superintendence these movements were being carried out, was unable to lower the signal for the engine to back on to the

down platform line, as there was a down train arriving on that line. At 3.36 p.m. this down train arrived, but at that moment Martin was offered the 3.5 p.m. from York; he accepted the latter train, and, as it was due to run into Milford Junction on the up platform line, he was still unable to lower the backing signal for the light engine. The light engine was therefore still left standing on the Hull down line, and it is not disputed that the backing signal was not lowered at all for it. Nevertheless, as the 3.5 p.m. train was running into the station, it was run into by the light engine which had backed along the down Hull line without the signal being lowered, and without the driver having received any instructions to that effect.

Driver Piercey honestly admits that he is responsible for this collision; he states that after he had been kept waiting on the Hull down line about two minutes he looked at the points, and seeing that they were lying right for him he thought that it must be intended for him to run back at once; he accordingly set his engine in motion, quite forgetful that he had received no signal to do so. He does not dispute that the backing signal, which should have been lowered for him, was still at danger.

There is a discrepancy between his evidence and that of the signalman as to the exact position as to which the engine came to a stand on the down Hull line, the latter stating that the engine had run beyond the backing signal before coming to rest, while the former maintains that he had never actually passed that signal. The point is not really of importance, as in neither case was driver Piercey justified in backing his engine without receiving instructions.

The responsibility for this collision, which fortunately had not more serious results, must therefore rest entirely on driver Piercey, and no blame attaches to any other servant of the Company.

Driver Piercey had been on duty four hours and a quarter at the time of the accident; the Company gives him a good character.

I have &c.,

P. G. VON DONOP,  
*Lt-Col., R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

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## APPENDIX.

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### DAMAGE TO ROLLING STOCK.

Engine No. 2,051.—Three tender axle boxes broken, buffer beam bent, and foot step knocked off.

Brake-van No. 176.—Off road with all wheels. 2 end rails, 8 step irons, 5 axle boxes, and all steps broken; 12 step irons, 6 axle guards bent; 1 side extensively damaged, and all brake work damaged.

Carriage No. 1,676.—Off road with all wheels and on broadside. 2 end rails, 1 sole, 1 quarter light, 2 middle rails, 1 short cross rail, 2 braces, 3 axle guards, 2 step irons, 1 side chain hook, 5 axle boxes, and all steps broken; side and end panels,

roof and all brake work damaged; 3 axle guards, 2 axles, 18 step irons, and 2 buffer rods bent.

Carriage No. 1,006.—Off road with all wheels. 2 end rails, 2 middle rails, 2 braces, end panels, 3 axle boxes, 8 steps, 6 step irons, 1 bearing spring, 1 buffer pad, and 1 buffer cheese broken; roof, side, 1 door, 1 sole plate, and all brake work damaged; 6 axle guards, 6 step irons, 1 buffer rod, and 1 axle bent.

Carriage No. 144.—Off road with 2 pair of wheels. 1 end rail, 1 step, and 1 step iron broken; roof, side, and end damaged; 2 axle guards and 1 step iron bent.

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Printed copies of the above Report were sent to the Company on the 6th May.

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## APPENDIX B.

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### REPORTS OF THE ASSISTANT INSPECTING OFFICERS OF RAILWAYS ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

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#### BARRY RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
21st March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of March 5th, the result of my inquiry into the causes of the accident which occurred on the 24th January to brakesman A. Parry at Barry, on the Barry Railway.

At 11.55 p.m., when finishing duty, Parry was instructed by guard Williams to uncouple a brake-van from the engine for the purpose of "fly-shunting" it into a siding, and to do so he stood on top of the draw-bar hook. When he was in this position his right foot slipped between the draw-bar and the head-stock, and as the engine eased up, his foot was caught and crushed.

The accident is one of a number which may be expected when men are allowed to fly-shunt vehicles. Such a practice is evidently countenanced by the Company's officers, although the Company state that it is performed in defiance of their rules.

Fly-shunting is a most dangerous operation unless special appliances are used, and as there should be no difficulty in making arrangements whereby the work can be performed by other means, I consider the Company should prohibit the practice and enforce compliance with such prohibition.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### BELFAST AND NORTHERN COUNTIES RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
23rd April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 8th, the result of my inquiry into the causes of the accident which occurred on the 4th of February to station master John Fitzsimmons at Kellswater, on the Belfast and Northern Counties Railway.

Three waggons had been uncoupled from a down goods train and placed in the up siding by means of a tow rope. After the operation had been completed, but before the tow rope was detached from the engine, Fitzsimmons caught hold of the rope with the intention of attaching it to the waggons standing in the siding, so that they might be drawn ahead and placed opposite the crane, but as the driver had not been advised of what was proposed to be done, he moved the engine ahead to return to the train, and Fitzsimmons who was holding the trailing hook of the rope was drawn forward, and falling, sustained slight injury.

The accident appears to have been due to a misunderstanding amongst the men, and failure to obtain a proper signal by fireman Boone before informing driver Hill that all was right.

As the accommodation at the station is limited, there being only one siding on the up side of the main lines, it is necessary to tow-rope waggons worked forward by down trains into the siding. The traffic is very light, but to avoid such a practice which is attended with considerable danger the Company might consider the advisability of working the trucks forward to a station in advance so that they might be attached to up trains and returned to Kellswater on the up line, so that the use of such an appliance would be unnecessary. Failing this another cross-over road between the main lines is desirable should the traffic continue.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## BELFAST AND NORTHERN COUNTIES RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

6th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 8th, the result of my inquiry into the causes of the fatal accident which occurred on the 10th March to lamp-lad Joseph Agnew at Greenisland, on the Belfast and Northern Counties Railway.

About 5.45 a.m. Agnew went to the signal-box to obtain the key of the lamp-room, and, when leaving, signalman Beggs requested him to examine the labels of three waggons which were standing in the "short" siding opposite the box. Agnew accordingly went over to the waggons and supplied Beggs with the information he desired.

Meanwhile the 5.30 a.m. goods train from Belfast had arrived, and after the engine had been run round the train Beggs informed the driver that two of the waggons had to be attached. The engine was then run into the "short" siding for the purpose of shunting them, as the middle waggon of the three had to be left behind, and Agnew commenced to couple the waggons together with the concurrence and by the direction of Beggs. When the engine had been attached Agnew gave the driver a signal to draw ahead, but was not again seen alive. His body was found on the points leading from the "short" siding, and it is supposed that after following the trucks he failed to get clear and was knocked down and run over as the waggons were being propelled through the cross-over road after the points had been reversed and the signal pulled off.

Agnew, who was 16 years of age and had only been in the service about two months, was employed as a lamp-lad, and it was no part of his duty to perform any work in connection with shunting operations, nor had he any experience in such work.

Beggs was not in charge of Agnew, but knowing that he was inexperienced he should not have allowed any movement to take place until the regular shunter was in attendance. Further, Beggs did not obtain a signal from Agnew that the waggons were clear of the points before setting the road, in accordance with Rule 247 of the Company's Regulations. Had he done so it is possible that the mishap would not have occurred. For these reasons, although the accident may have been due to want of caution on the part of the deceased, I consider Beggs displayed contributory negligence.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

7th February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 23rd, I have held an inquiry into the circum-

stances attending the accident which occurred on January 7th at the Hamilton engine sheds, on the Caledonian Railway, whereby cleaner Alexander Fleming was injured.

About 12.15 a.m. Fleming was engaged with a gang in cleaning a tank engine which was standing in No. 5 road. This engine was coupled to another tank engine which stood nearer to the shed entrance. While Fleming was standing with his right arm between the buffers two other engines were brought into No. 5 road in accordance with instructions given by the turner, Joseph Wemyss. The buffers of the engines were closed up, and Fleming's arm was crushed, his elbow joint being dislocated. Wemyss was aware that the cleaners had been working in No. 5 road, but failed to see that they were clear before the engines were brought into the road, and he must be held responsible for the accident.

According to instructions issued by the locomotive superintendent on June 29th, 1901, a "Not to be moved" board should have been placed on the tank engine nearest to the shed entrance. Foreman cleaner Thomas Donaghy, who was in charge of the gang, had initialled these instructions, but admitted that he did not understand them, and in this case, as in all others, he did not put the boards on any engine other than the one on which the men were working. He admitted that he had frequently neglected to put the boards even on engines which were being cleaned. He is much to blame for this neglect, which might have had most serious results. The fact that it was permitted points to a lack of supervision on the part of Mr. Hamilton, the locomotive foreman.

The various instructions respecting the steps to be taken for the protection of cleaners are not, in my opinion, properly exhibited on the shed notice boards or properly understood by the staff. It is to be hoped that the Company will take such steps as will prevent a recurrence of similar accidents in future.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

10th February, 1901.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 20th, I have held an inquiry into the circumstances attending the accident which occurred on January 10th at Shawfield, near Rutherglen, on the Caledonian Railway, whereby brakesman William French was fatally injured.

French was head guard on a mineral train consisting of 36 loaded waggons which travelled on the down slow goods line, and reached Shawfield down loop home signal about 11.50 a.m. It was intended to "fly-shunt" the train into the "back-loop" road in Polmadie Yard, the entrance to which, at the east end, is controlled from the Shawfield signal box. Accordingly French rode on the right hand buffer of the leading waggon, and uncoupled from the engine with his hand when the engine was about 100 yards from the box and was travelling at about eight miles an hour. The engine ran ahead into No. 1 loop, and after the points had been reversed the train ran into the "back-loop" road. Just before the leading waggon reached the points French apparently attempted to cross over to the left hand side of the waggon by stepping on the drawbar hook, but he fell from the waggon into the four-footway. His legs lay across the right hand rail, and the whole of the train passed over him, causing fatal injuries.

When the Polmadie Yard was made it was intended that all trains should be set back into the yard at the west end, but about nine years ago it was found that the accommodation was insufficient to deal with all the traffic in that manner. At the present time about 20 trains are put into the yard at the east end daily, and with about six of these trains the above system of "fly-shunting" is adopted. The remainder are propelled by the engines of other trains standing behind them on the slow line.

"Fly-shunting" is at all times a dangerous operation, and I am of opinion that the Company should take steps to abolish it entirely at this place. The removal of the existing cross-over road from the down slow goods line to the down main line to a point about 240 yards east of the Shawfield signal box would enable all train engines to be run round

their trains in order to propel them into the yard, and failing any better means I think the Company would do well to consider this method of abolishing the dangerous practice adopted at present.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of February 20th, I have held an inquiry into the circumstances attending the accident which occurred on January 31st near Beattock, on the Caledonian Railway, whereby driver Thomas Johnston was injured.

Johnston was driver of the 2.20 p.m. stopping passenger train from Carlisle to Carlisle. His engine had been recently repaired, and had not since been worked with a train. He examined the engine at several stations on the road, and found that the big-end was rather warm. The train stood at Beattock for four minutes, during which time Johnston was attending to the big-end. He started the train as soon as he received a signal to do so, and then went out on to the framing to examine the rest of the motion. While in a stooping position he put some oil in the piston and gland cups. When about to stand upright and catch hold of the hand-rail his foot, which he had inadvertently placed on the bottom of his coat, slipped. Johnston jumped from the engine to the ballast and lighted on his feet, but sprained his ankle. The fireman and the guard saw him and stopped the train, which was travelling at about seven miles an hour and was about 500 yards from Beattock Station.

Johnston was well aware that he was acting contrary to instructions by walking along the framing while his engine was in motion, and he must be held responsible for the accident. If it was necessary to examine the engine before reaching the next station he should have done so before leaving Beattock.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

28th February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with your Order of February 20th, I have held an inquiry into the circumstances attending the accident which occurred on January 31st at Germiston Junction, near St. Rollox, on the Caledonian Railway, whereby brakesman Charles Purvis was injured.

Purvis had been working with a special mineral train, and was returning with engine and brake-van only to St. Rollox top yard. The engine and brake-van were travelling on a goods line known as the "third road" which runs parallel to the down main line. The third road is connected with the "shed" road by means of facing points, which are situated about 100 yards in front of the down advance signal post. This post is placed between the down main line and the third road. The points were set for the engine and brake-van to go into the shed road, but Purvis wanted his brake-van to go down the "third road," and in order to attract the driver's attention by whistling he stood on the step of the brake-van and leant out at the full extent of his left arm. His neck came in contact with the stay wire of the down advance signal post and he was thrown to the ground. The accident occurred about 1.10 a.m.

The stay wire at the time of the accident was 4 feet 1 inch from the nearest rail of the third road, and has since been moved to a point 5 feet distant therefrom. There was no need for Purvis to place himself in such a dangerous position, and the accident must be attributed to his own want of caution.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
4th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of February 20th, I have held an inquiry into the circumstances attending the accident which occurred on February 1st at Stirling, on the Caledonian Railway, whereby yardsman William Morris was injured.

Morris was acting as second yardsman and was working with the yard pilot engine. Six waggons were standing on the loop line near Stirling south box, and at about 11 a.m. the engine, with two other waggons attached, was setting back on to them. Yardsman Robert Thornton was waiting to couple the waggons together, while Morris was climbing on to one of the six waggons, in order to protect the train when travelling back to the "Middle" box. Morris placed his coupling pole over the buffer and under the draw-bar hook of the waggon, and attempted to climb on to the waggon by that means, but when the engine moved all the waggons forward, his pole slipped and he fell to the ground, breaking his right leg. Morris was aware that the engine was setting back, and the accident must be attributed to his want of caution in attempting to get on to the waggon at that moment.

Although the Company have issued no written or printed instructions that men must ride on waggons while they are travelling on the loop line between the "South" and "Middle" signal boxes (a distance of a quarter of a mile), the practice is authorised by the responsible officials. So many serious accidents have occurred to men riding on waggons in this manner that I consider that the Company should take steps to abolish the practice entirely. If it is necessary that a man should ride at the end of the train, a brake-van, or other vehicle in which he can ride without danger, should be provided.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
4th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of February 20th, I have held an inquiry into the circumstances attending the accident which occurred on February 3rd in the private sidings of the British Tube Works at Langloan, whereby brakesman Thomas Walsh was injured.

Walsh, who is in the service of the Caledonian Railway, was working as second brakesman with a pilot engine. About 8.50 a.m. the engine was drawing 20 waggons up a slight incline out of a siding known as the "strip road." It was necessary to make a shunt with one of the waggons in the middle of the lift, and the waggons in the rear were uncoupled by Lowthian Scott, the first brakesman. Scott told Walsh to watch these waggons as they would have fouled a cart road if they had run back down the siding. Walsh applied one brake, but it was not in good order, and the waggons commenced to

run back, so he picked up a sprag and attempted to throw it into one of the wheels. The sprag rebounded and struck him knocking him down and bruising his left leg. I consider that the mishap may be described as accidental.

So many accidents, however, have occurred from the use of sprags, that I am of opinion that the Company should take steps to restrict the use of them as far as possible. The application of an effective brake would have been sufficient to prevent the waggons from running back in this case.

The sidings at the British Tube Works, which are the property of Messrs A. J. Stewart and Menzies, Limited, are not in my opinion sufficiently well maintained for men to work therein in safety. The ballast is uneven and there is a considerable amount of scrap metal, &c., at the side of the lines.

The sidings are used by both the Caledonian and the North British Railways, and I consider that both Companies should, in the interests of the safety of their men, press the owners to have these defects remedied without delay.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CHESHIRE LINES.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
25th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 5th, I have held an inquiry into the circumstances attending the accident which occurred on Sunday, February 23rd, at Liverpool Central Station, on the Cheshire Lines Railway, whereby platelayer Benjamin Bushell was seriously injured and platelayer John William Jones was fatally injured.

Bushell and Jones were working with a gang consisting of 36 men in charge of James Lythgoe, chief inspector of permanent way. About 11.50 a.m. the engine of the ballast train, which consisted of 21 waggons and two brake-vans, was standing on the middle road in the tunnel between St. James Station and the Central Station at the down home signal (for the Central Station), which is about 230 yards from the north end of the tunnel. The down main line home signal is 13 yards nearer to the station, and 35 yards beyond that is a "stop" signal, which is interlocked with the down main shunt signal.

The ballast gang were engaged on the down main line loading spent ballast and rubbish into the ballast train. At the same time foreman shunter Henry Morgan and signalman Thomas Bryden, who was on duty in the Central Station signal-box, arranged to "loose-shunt" a train of empty coaches standing in No. 1 platform up the down main line in order that they might be run by gravity into another platform road. The gradient from the station to the down main shunting "stop" signal is a rising one of 1 in 112, but beyond the "stop" signal the gradient increases to 1 in 90, and in order to take advantage of the increased gradient it appears to have been a regular practice to "loose-shunt" coaches past the "stop" signal, and also past the down main home signal. The brake at the north end of the coaches is stopped opposite to the latter signal, which is lowered by the signalman to permit the coaches to run back into the station. As a general rule trains are shunted on the up main or the middle roads, but the use of the down main line in the above manner is stated to have been almost a daily occurrence, although in this case the down main line was used owing to a certain pair of points being temporarily out of use. Chief inspector Lythgoe denies that he had any knowledge of the practice, and states that he considered that the "stop" signal on the down main line was a sufficient protection for his gang in the direction of the Central Station. Consequently the gang received no adequate warning of the approach of the empty coaches, and Bushell and Jones were knocked down, with the unfortunate results stated above. Two other platelayers were knocked down, but were not seriously injured. There was no lighted lamp on the empty coaches, and the shunter in charge was riding as usual in the brake at the north end of the train. Bushell and Jones were working at a point about 72 yards south of the "stop" signal.

Although no definite authority has ever been given for the "stop" signal to be passed at danger, there is no doubt that the practice has received the sanction of the

responsible officials of the Company, and the accident must be attributed mainly to the fact that such a lax method of working has been permitted.

Chief inspector Lythgoe had had considerable experience of the working at the Central Station, and, even assuming that he had no knowledge of the method employed in "loose-shunting" coaches on the down line, I am of opinion that he should not have relied entirely on the "stop" signal to protect his gang, especially as that signal is in the middle of a tunnel and might be obscured by smoke. I consider that he should have employed a "look-out" man as an additional precaution. I also consider that foreman shunter Morgan and signalman Bryden exhibited a want of discretion in "loose-shunting" the coaches under the circumstances, as they were both aware of the position of the ballast train.

It is to be hoped that the Company will take steps to prohibit such a lax method of working in future, and prevent the recurrence of accidents similar to this, which might have been attended with even more serious results.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### CHESHIRE LINES.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

23rd April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 9th, I have held an inquiry into the circumstances attending the accident which occurred on March 22nd at Manchester Central Station, on the Cheshire Lines, whereby Charles Elliott, a driver in the service of the Midland Railway, was injured.

About 11.0 a.m. Elliott's engine was standing on the turntable road, nearly opposite to "B" signal cabin. Between the turntable road and the cabin is No. 8 platform road. Elliott was waiting to take his engine on to the turntable, and had been oiling that side of his engine nearest to the cabin. As he was walking to the end of the tender to go round to the other side he was struck on the shoulder and knocked down by the van of an empty coach train, which was being propelled out of No. 8 platform. His head was cut against the tender of his engine and his right foot was bruised by the wheels of the van.

Owing to the curvature of No. 8 road and the position of the signal cabin, Elliott would not have been able to see the coaches approaching for any great distance. The distance between No. 8 road and the turntable road at the point where the accident occurred is only 5 feet 9 inches, and I am of opinion that such a clearance is not sufficient to permit enginemen to attend to their engines in safety. Elliott had a clear view of the signal controlling the exit from No. 8 road, but as it is a very exceptional occurrence for trains to be propelled out of this road, I hardly think that he can be blamed for failing to notice the position of this signal.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### FURNESS RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

14th April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 10th, I have held an inquiry into the circumstances attending the accident which occurred on February 24th at Whitehaven, on the Furness Railway, whereby goods porter James McCourt was injured.

About 11.0 a.m. McCourt and another porter named Joseph Glaister were engaged in tying the sheet strings on a low-side waggon standing in the "back side" road in the

goods yard. At the same time yardsman Thomas Birkett was marshalling a goods train, and it was necessary to shunt another waggon on to the one at which McCourt was working. Birkett was aware of the position of the porters, and before turning the waggon into the "back side" road he whistled to warn them. Both men heard the whistle but thought that it referred to a waggon which had been shunted immediately before, and was then running into another road. They did not notice the waggon coming into the "back side" road until it struck the waggon at which they were working. The latter was pushed towards the next waggon in the road and McCourt's wrist was bruised between the buffers.

The mishap was due to the fact that Birkett's signal was misunderstood by McCourt and Glaister. Birkett was standing about 60 yards from them, and I consider that he should have satisfied himself that his warning had been properly understood before turning the waggon into the road.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### FURNESS RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

14th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 25th, I have held an inquiry into the circumstances attending the accident which occurred on March 6th at Barrow, on the Furness Railway, whereby shunter Frederick Watts was injured.

About 12.45 p.m. Watts, who was working with a shunting engine, was riding in the last waggon of a rake of thirteen, which were being brought into the yard at the Ironworks Road entrance. This waggon was partly loaded with barrels of oil, and the brake was jinned down. When passing over the double crossing opposite Hindpool South signal-box this waggon became derailed and Watts' left leg was crushed against the side of the waggon by one of the barrels. I was unable to ascertain definitely why the waggon left the road, and I consider that the accident may be attributed to misadventure.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### GLASGOW AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

27th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 24th, the result of my inquiry into the causes of the fatal accident which occurred on the 8th March to assistant goods guard Alexander Beck at Milliken Park, on the Glasgow and South-Western Railway.

Beck was working with a goods train which arrived at Milliken Park at 12.41 a.m., and during shunting operations an empty waggon was run into the coal siding, but owing to the distance having been misjudged it struck the waggons which were standing in the siding with so much force that it was derailed.

Steps were then taken to re-rail the waggon, and to draw it from the angular position in which it was standing it was necessary to use a long coupling which was placed on the leading truck of the waggons attached to the engine.

To effect the coupling with the derailed truck the waggons were brought back gently, and Beck was instructed by guard Hogarth to stand by the truck and show a red light as soon as the waggons came together. A red light was received from Beck and the waggons were brought to rest, but when Hogarth shouted to learn if all was right he



received no reply, and it was then discovered that Beck was crushed between the waggons and the corner of the derailed truck, having evidently attempted to pass between them for the purpose of coupling before they had come to a stand. He was so injured that he died shortly afterwards.

Hogarth assures me that, realising the danger, he specially warned Beck against coupling up before the waggons had come to rest, and, therefore, the accident appears to have been due to want of caution on the part of the deceased man.

It may, however, be pointed out that, owing to the absence of any fixed lights in the yard, it was very dark at the spot, and the mishap may have been partly due to the difficulty Beck would experience in clearly seeing the dangerous position in which he placed himself.

As there is a considerable amount of shunting performed in this yard after dark, I would recommend that the Company should adequately light the sidings without delay.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GLASGOW AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
29th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 16th, I have held an inquiry into the circumstances attending the accident which occurred on March 26th at Kilwinning, on the Glasgow and South-Western Railway, whereby yardsman Samuel Henderson was injured.

About 4.25 a.m. two waggons of an up train were fly-shunted into the yard by means of the train engine. The waggons did not run far enough to clear the points, and in order to release the engine, the tow rope was brought from the other end of the yard. After the waggons had been towed clear of the points the tow rope hooks were placed on the horizontal hand rail at the front of the tender. The rope was laid on the side framing of the tender, which was about four inches in width. While the engine was setting back to pick up some waggons the rope fell off the tender framing and caught against the guard rail of a crossing. Henderson was riding on the step of the tender and was thrown to the ground as the rope became taut. The rope was broken and the top joints of two fingers on Henderson's left hand were cut off. They were apparently caught between the rope, which was made of wire, and the sharp edge of the tender framing. John Hannah, the second guard of the train, placed the rope on the tender framing, but Henderson, who was in charge of the shunting operations, was aware of its position, and he should not have attempted to carry it down the yard in such a careless manner. If the yard had been properly lighted it is possible that Henderson might have seen the rope falling in time to prevent the accident, and the Company's attention should be drawn to the absence of lamps in this yard, in which no less than ten trains are dealt with nightly.

Owing to the construction of the yard, the operations of fly-shunting and tow-roping are very frequently performed. Both these operations are attended with considerable risk to the men employed therein, and I consider that the Company should take steps, by the provision of an additional cross-over road, or other suitable means, to remove the necessity for their adoption.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
10th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 24th, I have held an inquiry into the circum-

stances attending the accident which occurred on January 13th at Barnsley, on the Great Central Railway, whereby goods guard Henry Ibbeson was injured.

Ibbeson was guard of the 6.0 p.m. goods train from Barnsley to Oulton Main. When walking between the goods lines in Pindar Oaks Yard, he was talking to a shunter standing behind him and was looking back over his shoulder. The weather was frosty, and he slipped in a slight depression in the ballast (which had been caused by the removal of snow from a crossing) spraining his right ankle. The mishap was purely accidental.

The Pindar Oaks Yard is not provided with any fixed lamps, although a considerable amount of shunting is carried on at night. I understand that the Company are at present considering the question of lighting this and other similar yards on the system, and it is to be hoped that the work will be carried out as soon as possible.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

21st March, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of March 4th, the result of my inquiry into the causes of the fatal accident which occurred on the 19th of February to engine driver J. Parkin at Linby Bridge, near Nottingham, on the Great Central Railway.

Parkin was working an empty coal train from Woodford to Iccles with engine No. 791, and during the journey the leading axle box on the left side of the tender became heated. Every attention seems to have been given to the box by Parkin, so much so that he had on many occasions stood on the bottom footstep of the tender to lubricate the box while the engine was running. On approaching Linby overbridge he crossed the footplate evidently for the same purpose, although the fireman did not actually see him get upon the footstep, and it is assumed that while Parkin was in this position he came in contact with the girder of the bridge, where there is only a clearance of five inches, and was thrown from the tender and run over, with subsequent fatal results.

The primary cause of the mishap appears to have been the heating of the tender box, which I understand had given trouble in a similar manner before, but I am assured that the officer in charge of the shed to which the engine is attached had personally examined the box and had it attended to prior to Parkin taking charge. However, it was most unwise for Parkin to expose himself in such a dangerous manner, which no doubt was due to his anxiety to avoid failure, but the better course would have been to obtain an exchange of engines at one of the locomotive sheds on the route.

To avoid accidents of a similar nature the Company might again draw the attention of their enginemmen to the danger of leaving the footplate while the engine is in motion.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

7th April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 12th, the result of my inquiry into the causes of the accident which occurred on the 28th February, whereby platelayer E. Walsh was killed and platelayer J. Pheasant was injured, at Wadsley Bridge, on the Great Central Railway.

In this case a temporary connection had been made with the down main line a short distance beyond Wadsley Bridge Station, and a number of platelayers had been engaged

at the work under the charge of ganger Stennett. During the morning, when the switch was being placed in position, a flagman was appointed, but afterwards his services were dispensed with, although the siding rails had not been properly coupled up and two men were still working foul of the main line, for the reason that Stennett did not consider such a precaution necessary as he intended to keep a general look-out himself, and moreover there was an uninterrupted view of approaching trains for about 500 yards.

About 2.0 p.m. Stennett instructed Walsh to get some washers to make up a fish-plate joint between the siding rails and the connection to the main line and then left the work. During Stennett's absence Walsh requested Pheasant to give him some assistance, and while the two men were busy at the joint, and working foul of the down main line, they failed to notice the approach of a passenger train and were knocked down, both men receiving severe injuries, which in Walsh's case ultimately proved fatal.

The accident appears to have been due to want of caution on the part of the injured men, as knowing Stennett had left, they should have exercised more care in keeping a better look-out for their own safety during his absence; but at the same time, I consider Stennett should have advised the assistant ganger before going away so that he might have taken up his duties and acted as look-out man while the men were left unprotected.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

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### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

14th April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 3rd, the result of my inquiry into the causes of the accident which occurred on the 6th March to Ernest Pole, an employé of a private firm, at Leicester, on the Great Central Railway.

Some machinery was being loaded by means of an overhead traversing crane into a waggon standing in the crane siding, a number of men in the employment of a private firm being engaged at the work. At 7.30 p.m., when the loading was nearly completed, but before the machine had finally been lowered to the floor of the waggon, a shunting engine was brought back against a number of waggons standing in front of the truck in question, with the result that it was moved about two feet, and Pole, who was in the waggon, had his foot crushed below the machine as it swung with the movement.

No warning was given by shunter Adcock, who was responsible for signalling the engine back, as he came to the conclusion that no men could be working in or about the trucks owing to the fact that the electric lamps were not lit near the siding, nor was there any light in the crane driver's cabin.

There is no doubt that the absence of light at the place was misleading, especially as it is a very unusual occurrence to load goods of such a description after dark. Still, as this road is used for loading and unloading purposes, I cannot free Adcock from blame for failing to assure himself that all was clear before allowing any movement of the waggons to take place.

It is stated that the failure to have the lamps lit was due in the first instance to the fact that the craneman, who, by the way, was the only servant of the Railway Company assisting at the work, did not know which switch to apply. However, when the electric lighting inspector appeared on the scene and suggested switching on the lights the men replied that it was unnecessary as the work was nearly completed. I understand that goods checker Willoughby was in charge of the loading, but I find he left the work about an hour and a half before the accident occurred to take up duty in the goods shed, and there seems to have been no one left in authority during his absence. Therefore, I am inclined to think the work was being performed in a rather lax manner. No doubt the Company will take steps to see that more care is taken in future when such work has to be performed after dark.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

18th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of March 4th, the result of my inquiry into the causes of the accident which occurred on the 13th February to driver John Shepherd between Three Horse Shoes and Whittlesea, on the Great Eastern Railway.

Shepherd was in charge of an engine which was running a trial trip between Peterborough and Three Horse Shoes, and during the journey he endeavoured to apply the exhaust steam injector, which is placed on the front of the engine, but without effect. On the return trip, as the injector still failed to act, Shepherd left the footplate to examine it and see where the defect lay, but as he was walking along the side framing he slipped on some ice, and in falling his hand was caught by the slide block and crushed.

The mishap appears to have been accidental, but at the same time Shepherd should not have taken up such a dangerous position while the engine was in motion. However, he can hardly be blamed for doing so, as it appears to be a common practice, and although the Company's representatives state that Rule 24 (A and B) applies generally to such an action on the part of an engineman, yet, until the men understand that by leaving the footplates of engines in motion they are contravening the rule, I am afraid the dangerous practice will still continue.

It would, therefore, appear necessary for the men to be cautioned and informed that by exposing themselves to danger in such a manner they are breaking the rule mentioned.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

GREAT EASTERN RAILWAY.

Railway Department, Board of Trade  
1, Whitehall, London, S.W.,

21st March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of March 4th, the result of my inquiry into the causes of the accident which occurred on the 19th February to goods porter T. Morgan at Spitalfields, on the Great Eastern Railway.

Morgan was employed unloading malt from waggons standing in No. 7 siding, and to do so it was necessary to place each waggon opposite a shoot situated in the six-foot space. Immediately prior to the accident Morgan was instructed by checker Mason to lever a waggon, which was standing with eight others a short distance away, forward to the shoot, and while engaged at this work two waggons were shunted into the siding, and colliding with eight waggons pushed them forward against the truck Morgan was levering, and he was struck on the head by the buffer of the foremost waggon and severely injured.

The two waggons were shunted into the siding by shunter Berry, who looked down the road before doing so, and seeing no one working at the shoot assumed that all was clear. As he knew that it was customary for the men to lever the waggons into position, and that in doing so they might possibly stand foul of the four-foot way, he should have exercised more care to see that no one was working about the trucks before performing the shunt, and, therefore, I consider Berry is responsible for the accident in failing to strictly comply with Rule 112A.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

14th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 25th, the result of my inquiry into the causes of the accident which occurred on the 3rd March to assistant ballast guard W. Smith at Coltishall, on the Great Eastern Railway.

Coltishall is situated on the single line branch between Wroxham and Reepham, and as it is not a staff station with a crossing loop, the siding accommodation is limited. A ballast pit has been opened out on the east side of the station, and to work the waggons into the ballast sidings it is necessary to tow-rope them over the points of a short loop, which will only hold nine waggons, so that the engine may get to the rear of the train. A 22-ft. chain has been used for this purpose, and on the occasion in question Smith was in the act of detaching it from one of the waggons after the engine had eased up when the "sag" of the chain caught in some point boxing, and, tearing it up, Smith fell over the timber and was somewhat injured.

With the existing arrangements there appears to be no other way by which the work can be performed, and as there is a large amount of tow-roping done at this place daily in connection with the ballast working, I would recommend, should the work continue, that the accommodation be increased so that the use of the tow chain may be avoided.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

7th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 25th, the result of my inquiry into the causes of the accident which occurred on the 6th March to F. Gillingwater at Breydon Junction, on the Great Eastern Railway.

Breydon Junction is the junction of the two single lines from Acle and Reedham which at this point converge to form a double line into Yarmouth, and it is necessary when trains are coming off either branch to give up the staff or ticket, as the case may be, to the signalman. On the morning in question, when the 9.15 a.m. passenger train from Norwich to Yarmouth was passing through the junction, fireman John Carr held out the staff in the usual manner, but signalman Gillingwater failed to catch it properly and a finger of his right hand was injured. Gillingwater asserts that the train was travelling at from 20 to 25 miles per hour, and it was difficult if not impossible to take the staff with safety. Against this statement, however, the enginemen assure me that the speed was not beyond 15 miles per hour, and that the failure to catch the staff by Gillingwater was due to the fact that he was not ready to receive it, owing to his being late in leaving the box.

It is difficult to decide which statement is correct, but in any case I consider the speed was too high for the safe delivery of a staff, and I would suggest that a restriction of seven miles per hour should be enforced when such an operation has to be performed.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

5th April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 26th, I have held an inquiry into the circumstances attending the accident which occurred on March 12th at Waltham Cross, on the Great Eastern Railway, whereby John Ford was fatally injured.

About 12.30 p.m. Ford, who was employed by the Waltham Gas Company, brought some crates to the station. Instead of going to the goods office to obtain a signature for them, he walked across the lines to the up side, where the note was signed by yardman George Bryant. Bryant and horse-lad Albert Roots were about to push an empty horse-box towards the buffer stops at the west end of the siding, known as the "straight road." There were 13 waggons in the siding at the east end of the horse-box which was standing about a yard from the other waggons. Ford volunteered to assist Bryant to push the horse-box, and attempted to pass between the vehicles in order to push at the opposite side. The waggons, however, were moved by an engine which was being attached to the first waggon in the road, and Ford was caught between the buffers and fatally injured. Shunter George Staff, who was in charge of the shunting operations, was on the far side of the straight road, and was consequently unable to see Ford. Ford's assistance was not really required to move the truck, and no doubt Bryant would have acted more wisely if he had declined the offer of it, but the accident must be mainly attributed to the fact that Ford needlessly placed himself in a position of danger.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

7th April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 12th, the result of my inquiry into the causes of the accident which occurred on the 13th February to fireman W. H. Freeman at Lincoln, on the Great Northern Railway.

On the arrival of the 7.11 p.m. passenger train at Lincoln it was necessary for the engine to obtain a supply of water while the train was standing at the platform, and to hold the gib of the water crane Freeman stood on the top of the tender. After the tank had been filled and the jib swung clear the engine was started by driver Andrews before Freeman had time to reach the footplate, and in stepping down from the tender his head came in contact with an overhead bridge and he was knocked down and somewhat injured.

Driver Andrews was solely responsible for the accident, as he should have assured himself that his fireman was on the footplate, or in a position of safety, before starting the engine.

The water column at this place is situated between the platform line and the down loop, and is only 16 feet distant from the overbridge in question.

As the space is so limited drivers should be particularly careful, after taking water, to see that the firemen are clear before making any movement with the engine, and I suggest that they be warned to this effect.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
18th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 26th, I have held an inquiry into the circumstances attending the accident which occurred on March 13th at Manchester, on the Great Northern Railway, whereby foreman porter Joseph Symons was injured.

About 7.20 a.m. Symons was moving a fruit van on No. 3 road in the Deansgate goods warehouse by means of a hydraulic capstan. The capstan, which is one of Armstrong's three-cylinder pattern, is put into motion by the depression of a treadle. When the van was approaching the capstan Symons took his foot off the treadle, but the treadle did not immediately resume its normal position, and the capstan continued working for a few revolutions. It was checked sufficiently to allow the hook to become released from the van, and the hook swung against Symons' right ankle and bruised it.

The capstan was examined shortly after the accident and was found to be in good working order. The failure was probably due to some slight obstruction which temporarily prevented the balance weight from closing the admission valve.

I consider that the accident may be attributed to misadventure.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
29th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 17th, the result of my inquiry into the causes of the accident which occurred on March 22nd to porter F. Masters at Cambridge, on the Great Northern Railway.

After the arrival of the 6.17 p.m. passenger train Masters commenced to clean the carriages while they were standing at the platform, and as part of his duty was to extinguish the lamps after the cleaning was finished, he climbed to the roof for this purpose. While he was in this position the carriages were shunted out of the platform road to be stabled in the locomotive sidings, and as Masters had not finished the work he remained on the roof of one of the carriages, and in passing below an overbridge his head came into contact with the girders and he was somewhat injured.

Masters was well aware that the carriages were about to be shunted, and therefore I consider that the accident was due to his own want of caution in placing himself in such a dangerous position when there was a likelihood of the coaches being moved.

The Company's representative who attended my inquiry has agreed to instruct the men that carriage lights must not be put out while the train is standing at the platform in future, but left until the coaches have been shunted into the locomotive sidings and brought to rest for the night.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
16th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 6th, I have held an inquiry into the circumstances

attending the accident which occurred on March 29th at Doncaster, on the Great Northern Railway, whereby fireman George Rowley was injured.

Rowley was fireman on a passenger engine which was running tender first from the engine shed to the passenger station. While the engine was standing at the Red Bank signals Rowley went on to the top of the tender to break the coal, and remained in that position after the engine had started.

In order to avoid the overhead bridge north of the Red Bank signal-box he attempted to sit on the side of the tank, but he missed the coal-rail and overbalanced as the engine was going over a pair of points. He fell to the ground and his collar-bone was broken.

There was no necessity for Rowley to be in such a dangerous position while the engine was in motion, and the accident must be attributed to his want of caution. His driver, Thomas Cornthwaite, is also to blame for starting the engine while Rowley was on the tender. Both Cornthwaite and Rowley admitted that the practice had been frequently adopted on previous occasions, and I am of opinion that the issue of an instruction definitely forbidding the practice would have a good effect.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

## GREAT NORTHERN AND LONDON AND NORTH-WESTERN JOINT RAILWAYS.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

15th April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 3rd, the result of my inquiry into the causes of the accident which occurred on the 11th March to horse-shunter J. J. Tazzyman at Melton Mowbray, on the Great Northern and London and North-Western Joint Railways.

At 12.15 p.m. two cattle waggons had to be horse-shunted from the down sidings across the main lines to the up sidings, and Tazzyman, who was performing the work, attached the horse-chain to the draw-bar hook of the leading truck, and the waggons were drawn by the horse walking along the four-foot way. On approaching the cross-over road the horse came to a stand for some reason unknown, and as Tazzyman was also walking in the four-foot way behind the horse he was overtaken by the trucks before he could get clear and was crushed between the waggons and the horse, sustaining slight injury.

It is necessary to attach the horse-chain to the draw-bar hooks of waggons which have to be drawn from these sidings when they have to be taken across the main lines, for the reason that there is hardly sufficient clearance between the rails and the parapet of an overbridge to allow the horse to pass when the chain is attached to the side loops, and, therefore, I consider in this case the mishap was accidental. It is desirable, however, that horse-chains should be attached to the side loops provided for this purpose on the sole bars of waggons rather than to the draw-bar hooks, and as there is a great risk of accident with the latter method of working, the Joint Companies will, no doubt, see that the former system is adopted whenever possible.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT SOUTHERN AND WESTERN RAILWAY (IRELAND).

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

16th February, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 31st, I have held an inquiry into the circumstances attending the accident which occurred on January 1st at Cork Goods Station, on the Great Southern and Western Railway (Ireland), whereby capstanman Patrick O'Brien was injured.



About 3.30 p.m. O'Brien was engaged in drawing seven empty waggons from the timber yard to the quay by means of a capstan. The capstan was worked by hydraulic power and operated by a treadle. When the last waggon to which the rope was attached was nearly opposite the capstan O'Brien removed his foot from the treadle but the capstan continued to revolve. The rope became released from the waggon and the hook struck O'Brien on the right leg knocking him down. He got entangled in the rope and was taken round by the capstan. After getting free he was struck in the back by the hook and chain at the end of the rope.

The failure of the operating mechanism of the capstan was found to be due to the presence of a small piece of spring which was jammed in the port and prevented the valve from closing. It was afterwards ascertained that the broken piece of spring had come through the hydraulic main from the foot-valve of the hydraulic pump, which is about 200 yards from the capstan. I consider that the mishap was purely accidental.

I have, &c.,  
J. H. ARMYTAGH.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

1st April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 12th, the result of my inquiry into the causes of the accident which occurred on the 22nd February to driver John Clements at Newport, on the Great Western Railway.

Clements, who is in the service of the Brecon and Merthyr Railway Company, had worked the 10.15 a.m. passenger train into Newport, and after disposing of the carriages he took the engine into the locomotive sidings where he prepared it for the return journey. After completing this work Clements left the engine at 12 o'clock to go home, but did not inform his fireman where he was going or when he would be back. On his return to the station at about 1.0 p.m. he saw that the engine had been brought out of the shed siding and attached to some coaches standing in the "up bay," which had to be shunted across the "up" main line into the middle road, and seeing his fireman Jobbins was working the engine Clements signalled to him to go on with the shunt. After the coaches had been drawn out of the "bay" and while they were being propelled across the main line Clements attempted to get on the engine, but in doing so he slipped and fell and his foot was run over rendering partial amputation necessary.

The accident appears to have been due to Clements' own want of caution in attempting to join the engine while it was in motion.

Jobbins should have waited until his driver's return before taking the engine out of the locomotive shed siding, but he did so with the intention of facilitating the work, and therefore his action, although unwise, must be attributed to excess of zeal.

It is very necessary for both the driver and fireman to be on the engine while shunting operations are being performed, and the Company might with advantage instruct their enginemen to this effect.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W..

29th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in

accordance with the Order of March 18th, the result of my inquiry into the causes of the accident which occurred on the 5th March to labourer H. Whiddett at Paddington, on the Great Western Railway.

Whiddett and a man named Howard were acting as labouring assistants to bricklayer H. Hill who was building a manhole below No. 6 platform. Howard was bringing materials to a breach made in the platform wall and Whiddett was in turn conveying them below the platform to Hill. During the time that Howard was disengaged it was understood that he should keep a look-out opposite the breach, but beyond this no other protection was provided.

At 2.15 p.m. Hill instructed Howard, in the presence of Whiddett, to go to Westbourne Park, and during Howard's absence Whiddett, without the knowledge of Hill, went to the breach in the platform wall for some purpose, and failing to notice the approach of an engine and coach as he left the hole he was caught by the foot-board of the carriage and injured.

I was unable to obtain evidence from the injured man as he did not attend my inquiry, but I am satisfied that Whiddett must have been aware that it was necessary to exercise the greatest care when leaving the breach during Howard's absence, and I therefore consider the accident was partly attributable to his own want of caution.

It is customary to provide a flagman for the protection of men working in similar positions, but foreman Harbour, who was in charge of the men, considered that as two men were in attendance on Hill one would naturally look out for the other. Seeing that it was necessary for one of the men to convey materials from a place some distance away the look-out could only be intermittent, and as the traffic is fairly continuous I think Harbour was remiss in failing to appoint a man specially for this duty.

I also consider Hill was to blame for failing to draw Harbour's attention to the danger of the work, especially as he had heard complaints from the men and was himself of opinion that a flagman was necessary.

The Company will, no doubt, impress their foremen and leading men with the necessity for providing efficient protection for men working in similar positions in future.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## HIGHLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

23rd April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 3rd, the result of my inquiry into the causes of the accident which occurred on the 14th of March to brakeman Robert Mackenzie at Muir-of-Ord, on the Highland Railway.

Three waggons had to be detached from a goods train and placed in the down sidings at Muir-of-Ord, and as there was no other way to perform the shunt without causing great delay, Mackenzie, who was working as brakeman with the train, used a tow rope. The rope was attached in the usual manner to the tender draw-bar and the tailing-hook on the leading waggon, and Mackenzie stood in front of the rope with the object of keeping it clear of the points. As the strain was applied the second time the tailing-hook broke, owing to a flaw in the material, and the rope in springing struck Mackenzie and he was somewhat injured.

The mishap was primarily due to a defect in the tailing-hook, which could not be seen, but I consider it was very unwise for Mackenzie to stand in front of the rope while such an operation was being executed.

Shunting waggons by means of a tail-rope is attended with considerable danger, and where the traffic to be dealt with in this manner is great a cross-over road and running-round loop should be provided, so that such a method of performing the shunting may be avoided.

I find that a fairly large number of waggons are tail-roped into the down sidings at this station daily, and I therefore consider that arrangements should be made to discontinue the use of such an appliance.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

### HIGHLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
22nd April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 3rd, the result of my inquiry into the causes of the accident which occurred on the 20th March to fireman Colin Munroe near Muir-of-Ord, on the Highland Railway.

Munroe was working as fireman with the 8.40 a.m. passenger train Wick to Inverness, and on approaching Muir-of-Ord he leaned against the side door between the engine and tender to effect an exchange of tablets with the signalman before reaching the station. While standing in this position the door, which is hinged to open outwards, became unfastened, and Munroe, losing its support, fell from the engine and was badly injured.

The mishap appears to have been accidental, but at the same time I would recommend that a more secure method of fastening be substituted for the one at present in use.

I understand that Muir-of-Ord is the only place on the system where tablets have to be exchanged by hand before trains enter the station, and that the Company propose to erect a mechanical apparatus for this purpose. This is very desirable, and no doubt the occurrence in question will expedite the alteration.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
21st March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 5th, I have held an inquiry into the circumstances attending the accident which occurred on February 4th at Halifax, on the Lancashire and Yorkshire Railway, whereby shunt-horse-boy Herbert Crawshaw was injured.

About 1.0 a.m. Crawshaw and shunt-horse-driver Wilfred Fenwick were engaged in drawing a covered truck down the warehouse road in Shaw Syke goods yard. Crawshaw attached the horse-chain to the truck, and then went to the other side to release the brake. The brake lever was somewhat strained, and Crawshaw was unable to fix it in the rack. He was endeavouring to do so while walking backwards by the side of the truck, which was being drawn by the horse, when he was caught between the truck and a waggon standing in a converging siding known as the "Limerick" siding. Crawshaw's ribs were bruised.

The accident was due to the waggon in the "Limerick" siding having been left too near to the warehouse road. Fenwick, who was in charge of the shunting, was responsible for leaving the waggon in such a position. Crawshaw, however, was working with him and must share the responsibility in a minor degree.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
21st March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 5th, I have held an inquiry into the circumstances attending the accident which occurred on February 15th at Bradford, on the Lancashire and Yorkshire Railway, whereby carriage cleaner Harry Long was injured.

About 2.15 p.m. Long was engaged in cleaning the end of a coach standing in No. 5 road in the Broomfield carriage sidings. While his left arm was between the buffers the coaches in the road were closed up by an engine working under the instructions of shunter Walter Squires. Squires did not see Long and was unaware that the cleaners were working at the coaches in that road.

The accident must be attributed to the lack of a proper system for the protection of carriage cleaners. Since the accident instructions have been issued for the protection of men working in places where danger is likely to arise, and if these instructions are properly carried out similar accidents should be prevented in future.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
24th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 10th, I have held an inquiry into the circumstances attending the accident which occurred on February 18th at Newton Heath, on the Lancashire and Yorkshire Railway, whereby engine boy Henry C. Read was injured.

Read was in charge of the boiler for the engines working the cranes at the new coal stage at the locomotive shed. About 5.0 a.m. he was wheeling a barrow filled with ashes to the ash-pit. In order to reach the ash-pit he had to wheel the barrow foul of the coal stage road. A pilot engine was standing at the coal stage, but before Read had got the barrow clear of the lines the engine was brought down the road. The driver did not see Read till the engine was nearly opposite the ash-pit, and was unable to stop in time to avert the accident. The step of the engine struck the handle of the barrow and the first finger of Read's left hand was injured.

I consider that the practice of wheeling barrows along the side of the coal stage road is dangerous, and the Company have agreed to issue instructions which will render the practice unnecessary in future.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
21st March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 5th, I have held an inquiry into the circumstances attending the accident which occurred on February 19th at Salford, on the Lancashire and Yorkshire Railway, whereby goods porter Thomas Hughes was fatally injured.

About 3.20 a.m. Hughes and another porter named Hugh Meehan were engaged in untying the sheet strings and removing ropes from the waggons in the road under the traversing cranes in Salford Top goods yard. Hughes was also engaged in uncoupling the waggons from one another where necessary. There were nine waggons standing beneath the crane way, and a short distance beyond were two waggons loaded with "flat-bottoms" of cloth. Meehan was working between the two roads which run under the crane way, and Hughes was on the outside, on the cart road on which the luries are drawn after being loaded from the waggons. While attempting to release the rope on the second of the two waggons beyond the crane way, Meehan called to Hughes but received no answer. He consequently walked round the waggon, and found Hughes lying on the ground at the corner of the waggon furthest from the crane way. His head was in the cart road, and his feet were just inside the four-foot way. He was unconscious and died before reaching the hospital. From the medical report, it appears that the majority of his ribs were broken, also his breast bone and collar bone. There was also a small fracture of the skull on the left side.

From the evidence, it appears that the waggons were not moved at all while Hughes was working at them, and it was assumed by the Company's officials that Hughes had been crushed against the waggon by a passing lurry loaded with a "flat-bottom" of cloth. However, according to the evidence which I obtained, no lurry passed the waggon during the time at which Hughes was working at it, and I regret that I am unable to form any conclusion as to how the accident occurred. I had considerable difficulty in obtaining any reliable evidence as to the circumstances attending the accident, and it is to be regretted that a thorough and decisive inquiry was not made by the Company's officials immediately after the accident, when the circumstances would have been fresh in the minds of all the men working in the immediate neighbourhood.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
23rd April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 25th, I have held an inquiry into the circumstances attending the accident which occurred on February 21st at Hindley Junction, on the Lancashire and Yorkshire Railway, whereby extra fireman William Halliwell was injured.

Halliwell is in the service of the London and North-Western Railway Company, and was firing on a coal engine which had been acting as bank engine in rear of a Lancashire and Yorkshire Company's coal train from De Trafford sidings to Hindley Junction. The bank engine was detached at a point about 200 yards beyond the junction, and had then to return light to De Trafford. The driver, Thomas Sedgwick, intended to bring his engine to a stand as soon as he was clear of the junction points, in order to change the head and tail lamps, and he informed Halliwell of his intention. Halliwell, however, went on to the top of the tender before the engine came to a stand, and his head came in contact with a signal gantry and was cut. I attribute the accident solely to want of caution on the part of the injured man.

I have, &c.  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

14th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 25th, I have held an inquiry into the circumstances attending the accident which occurred on February 27th at Preston, on the Lancashire and Yorkshire Railway, whereby extra goods porter James Delaney was injured.

About 9 p.m. checker James Crangle and porter Delaney were instructed by shed foreman William Moss to take some cases from the warehouse to the yard and load them into the "Longridge" waggon, which had been sheeted and was standing in the right-hand coal siding. While Delaney was standing in the waggon removing the sheet the waggons in the road were drawn down by the pilot engine, and Delaney fell to the ground, bruising his back. Inspector Joseph Charnley, who was in charge of the shunting, had previously been down the road, and had seen that all the waggons were sheeted and labelled and apparently ready to be shunted. It is only under exceptional circumstances that small consignments are loaded into waggons already sheeted, and it is usual for the shed foreman to advise the shunting staff when such work is to be done. In this case foreman Moss did not advise the shunters, as he was under the impression that the pilot would not have commenced work. However, as the pilot was booked to start working at 8.10 p.m., I do not consider that he was justified in his assumption, and the responsibility for the accident must rest with him.

The practice of loading goods into waggons which have been practically handed over to the shunting staff is an undesirable one, and should be discouraged as much as possible, but the Company have promised to issue definite instructions for the protection of the loaders in such cases, which should prevent similar accidents in future.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE, DERBYSHIRE AND EAST COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

2nd April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 20th, the result of my inquiry into the causes of the accident which occurred on the 5th March to driver Joseph Widdison at Attercliffe, on the Lancashire, Derbyshire and East Coast Railway.

At 7 a.m. Widdison was shunting in Attercliffe goods yard, and when drawing a load of waggons out of the coal road his engine commenced to slip owing to the greasy state of the rails. On applying the sand he found it would not flow from the pipes, as they were clogged with mud, and to free one side he got on the footstep for the purpose of tapping the pipe.

While Widdison was in this position he failed to notice a ground disc frame owing to fog, and coming in contact with it he was thrown to the ground and somewhat injured.

There was no necessity for Widdison to take up such a position while the engine was in motion, and as he fully realises that by doing so he was exposing himself to danger unnecessarily, and thereby breaking Rule 24a, he must bear the responsibility for the accident, which appears to have been entirely due to his own want of caution.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

4th February, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of January 18th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 4th January to shunter E. Blunt and fireman C. W. Brown at Nuneaton, on the London and North-Western Railway.

About 7 p.m. Blunt was engaged signing the shunting engine driver's ticket, which had been brought to him for this purpose by fireman Brown, and when they were standing in the four-foot way of the line leading to B. sidings, three waggons were shunted into the sidings, and the men failing to notice their approach were knocked down and run over, Brown being killed instantly and Blunt sustaining injuries which proved fatal shortly afterwards.

A large two-burner gas lamp was alight about 27 feet distant from the place where the accident occurred, and as there was certainly no necessity for the men to stand in such a dangerous position, especially as they must have been aware that waggons were about to be shunted into the sidings, I am of opinion that the mishap can only be attributed to their own want of caution.

The north sidings at this station were enlarged in 1901, and there appears to be ample space for the men to perform the work without undue risk of injury. The sidings are reasonably well lighted, especially the area where most of the work is carried on.

The practice of enginemmen leaving their engines in shunting yards for the purpose of obtaining signatures to their tickets is, I consider, objectionable. However, this has now been prohibited by the issue of the following notice :—

## Weekly Notice No. 12.

For week ending Friday, January 31st, 1902.

Enginemmen must not leave their engines to obtain signatures to their tickets, but shunters must go to the driver before he leaves duty, and give the necessary signature.

I have, &amp;c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

18th March, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 25th, the result of my inquiry into the causes of the fatal accident which occurred on the 11th February to porter Harry Griffiths between Heath Lane crossing and Whitechurch, on the London and North-Western Railway.

About 9.30 p.m. a dense fog came on, and it was necessary to call a certain number of platelayers to act as fog signalmen, and Griffiths was instructed by foreman Evans to call platelayer Stubbs, who resided at Tilstock, some considerable distance from the station, for the purpose of signalling at Heath Lane crossing.

Griffiths went by road to Tilstock, and, after calling Stubbs, accompanied him to Heath Lane crossing, as he had to satisfy himself that the fog signalman had taken up his duties, and Griffiths then proceeded to return to the station by the line, but as he did not arrive search was made, and his body was found a short distance from the crossing, on the Whitechurch side of Heath Lane bridge, where he had evidently been struck by the engine of a goods train travelling on the up line, and killed.

Griffiths could have returned by road equally as well as by the railway, and as I understand that he had been warned by the stationmaster against walking on the line when

returning from a similar errand only a month before the mishap occurred, it would appear that the deceased is alone responsible for the accident in unnecessarily exposing himself to danger by taking such a path.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
24th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 12th, I have held an inquiry into the circumstances attending the accident which occurred on February 17th at Poynton, on the London and North-Western Railway, whereby stationmaster Thomas Beeston was injured.

The goods siding at Poynton is connected with the down line only. It was necessary to detach three waggons for this siding from the 12.55 p.m. goods train from Longsight to Macclesfield. These waggons were separated from the engine by two other waggons. The train was shunted across to the down line in order to allow an up express to pass. After the express had passed, Beeston released the couplings on either side of the Poynton waggons, and the engine and the two waggons were taken on to the up line. Beeston then attached one end of a tow-rope to the second waggon on the engine, and the other end to the axle-guard of the last of the Poynton waggons. The Poynton waggons were drawn towards the sidings, and just as they reached the points, Beeston endeavoured to release the tow-rope from them by means of a sheet string which was fastened to the tow-rope hook. The string broke, and in hurrying forward to release the hook with his hand, Beeston slipped on some frozen snow and fell. His right foot was run over by one wheel of the last waggon, and two of his toes were cut off. The mishap was due to misadventure.

The operation of tow-roping, however, is always attended with considerable risk, and I am of opinion that the Company should take steps to abolish the practice at this station. No doubt the provision of a second cross-over road would be the best method. If this is found to be impracticable, the object can be attained by lengthening the short "dead-end" spur at the entrance to the siding.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
21st March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 1st, I have held an inquiry into the circumstances attending the accident which occurred on February 18th at Whaley Bridge, on the London and North-Western Railway, whereby lad porter Albert Chapman was fatally injured.

Chapman was only seventeen years of age, but in consequence of being exceptionally strong for his age, he had been acting as goods porter at Whaley Bridge for about 10 months. About 10 minutes before the arrival of the 9. a.m. up passenger train from Stockport to Whaley Bridge, Chapman went to the stationmaster's office on the up platform in order to fetch the waggon books. On leaving the office he had a short conversation with a mason's labourer, who was working on the up platform, after which he walked down the platform presumably with the intention of taking the waggon books to the goods shed, which is on the down side of the line.



He was not seen again until the up passenger train was entering the station, when his body was seen in front of the lifeguard of the tender as the engine was running tender first. A man standing on the coal stage shouted to the driver, who at once brought the train to a stand, when it was found that Chapman had received fatal injuries. A down passenger train was leaving the station just as the up train was entering it, and I think it is probable that Chapman was waiting to cross the lines behind the down train, and, failing to observe the approach of the up train, stepped directly in front of it. However, in the absence of any direct evidence on this point, I consider that the unfortunate mishap may be ascribed to misadventure.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
23rd April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 26th, I have held an inquiry into the circumstances attending the accident which occurred on March 5th at Warrington, on the London and North-Western Railway, whereby cleaner James W. Hatton was injured.

About 6.45 p.m. Hatton, who was acting as assistant to fitter Richmond Lee, was engaged in screwing up the mud hole cover of a six-wheels-coupled tank engine which was standing in steam in the engine shed. John Jones, the shed turner, wished to move this engine, and states that before doing so he looked round the engine and both shouted and whistled to warn anyone who might be working at it. He failed to see Hatton, who was sitting on the connecting rod, and Hatton failed to hear the warning. When the engine was moved, Hatton was squeezed between the connecting rod and the boiler, but fortunately was only bruised. Although there are no written or printed instructions on the subject, Lee admitted that it was his duty to have placed a target or red lamp on the engine before allowing Hatton to work at it, and the accident must be attributed to his neglect in this respect. Owing to Hatton's position, it is not surprising that Jones failed to see him, and there is no evidence to show whether Hatton's failure to hear the warning was owing to his own inattention or to carelessness on the part of Jones.

Although in this case Lee frankly admitted that he ought to have taken steps to protect Hatton, I would suggest that the regulations for the protection of fitters be printed and properly issued to all concerned instead of being verbally communicated as at present.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
14th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 26th, I have held an inquiry into the circumstances attending the accident which occurred on March 6th at Kendal, on the London and North-Western Railway, whereby shunt-horse driver Edward Todd was injured.

About 10.50 a.m. Todd was engaged in drawing a loaded waggon from the goods shed towards some other waggons standing in the same road. The horse chain was attached to the centre link of the waggon coupling, and Todd was walking in the six-foot way on the left side. When the waggon was about ten yards from the others in the road

the horse, which had just turned out of the four-foot on the right-hand side, shied for some unknown reason, and turned back towards the shed. Todd went into the four-foot and released the chain with his hand. The horse gave a sharp jerk on the chain, and Todd was pulled between the buffers just as the waggon reached the others in the road. Todd was squeezed between the buffers, and one of his ribs was broken.

I consider that in this case the mishap was due to misadventure. The practice, however, of attaching the horse chain to the draw-bar hook or coupling of a waggon is one that is attended with considerable risk to the shunt-horse driver when the latter has to go into the four-foot to release the chain while the waggon is being brought up to other waggons in the same road. It was stated at my inquiry that verbal instructions had been issued that the chain was not to be released from the waggon while the latter was in motion, but Todd admitted that he had disregarded these instructions as a general rule. It is to be hoped that the Company will issue and enforce definite instructions on the point, or take some other steps to prevent what is practically "fly-shunting" with shunt horses.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
24th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 26th, the result of my inquiry into the causes of the fatal accident which occurred on the 8th March to brakesman Robert Lindsay at Ingleton, on the London and North-Western Railway.

Lindsay was performing some shunting operations in connection with the formation of a mineral train, and at 3.30 p.m. he brought the engine and brake-van to the entrance of the middle road for the purpose of picking up a North-Eastern waggon which was standing in this siding.

When the brake-van had passed over the points leading to the siding Lindsay uncoupled it from the engine, and the van ran forward towards the waggon, and Lindsay, with the intention of releasing the coupling from a hook on the end of a waggon, went between the two vehicles before the van had reached the waggon, and when attempting to regain the six-foot way Lindsay was caught between the buffers and crushed, with fatal results.

I can come to no other conclusion than that the accident was entirely due to the deceased man's own want of caution, as although it was necessary to go between the vehicles to release the coupling there was no need for Lindsay to do so until they had come to rest.

The hooks mentioned are placed on the ends of waggons having long couplings, for the purpose of hanging up the couplings when not in use, so that they will clear point connections and locking gear placed in the four-foot way. They are attached to an old class of solid buffer waggon stock to which spring buffers have been added, and I understand that short couplings are being substituted as the stock is rebuilt. As it is impossible in many cases to unhook the links by means of a coupling pole when they are hung in this manner, it is desirable that the change should be effected with as little delay as possible, and the attention of the North-Eastern Railway Company might be drawn to the matter.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

27th May, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 13th, I have held an inquiry into the circumstances attending the accident which occurred on March 17th at Coventry, on the London and North-Western Railway, whereby goods porter William Manning was injured.

About 8 p.m. Manning was engaged in tying the sheet-strings on a waggon standing in No. 3 road outside the goods shed. He had to go into the four-foot way in order to perform part of the operation, and as he was stepping out between the waggon and the next, which was about a foot distant, his body was crushed between the buffers owing to the waggons being closed up. Horse driver Thomas Haddon, who moved the waggon by bringing two other waggons into the road, was unable to see Manning, but in accordance with the usual practice blew his whistle while the waggons were being drawn down the road. Manning, however, apparently failed to hear the warning.

In such sidings as these, where it is necessary for men to go between waggons in the performance of their duties, I consider that shunters and others should not be allowed to rely entirely on the present system of warning, but should be instructed to ascertain that all is clear before moving any waggons in the sidings.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

3rd May, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 24th, I have held an inquiry into the circumstances attending the accident which occurred on March 19th at Priors Lee sidings, near Oaken-gates, on the London and North-Western Railway, whereby brakesman Thomas Barber was injured.

Barber was in charge of the 2.25 p.m. goods train from Coalport to Hadley Junction. In order to attach some waggons to the train at Priors Lee sidings the tow-rope had to be used. While the waggons were being drawn down a siding by means of the rope Barber dropped his shunting pole between the waggons. In attempting to pick it up he placed one hand on the rope just as it became taut, with the result that one of his fingers was crushed between the rope and the brake-guard of a waggon.

In this case the accident was due to want of caution on the part of Barber, but the practice of tow-roping is always attended with a certain amount of danger, and I consider that the Company should take steps to abolish the practice entirely at these sidings. The sidings are used for traffic to and from the Lilleshall Company's Ironworks, and the abolition of tow-roping could be effected either by extension of the sidings or a more frequent clearance of them by the Lilleshall Company's engines.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

14th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of March 24th, the result of my inquiry into the causes of the fatal accident which occurred on the 7th February to carriage cleaner Maurice P. Masterman at Southampton, on the London and South-Western Railway.

During the night Masterman, with several other cleaners, had been engaged cleaning the carriages of three trains standing in No. 3 up platform road. At 5.45 a.m., after the work had been completed, he was instructed by foreman Bulpett to call a number of men for duty, and Masterman evidently left for this purpose. A few minutes later, however, he was found crushed between the brake-van buffers of the second and third train, his death having, apparently, been instantaneous.

Shortly after 5.45 a.m. an engine was coupled to the first train, and there can be no doubt that Masterman was killed when attempting to pass between the buffers of the two vans just as the carriages were closed up by the engine coming against them. It is assumed that the deceased crossed between the carriages with the object of joining a train which was standing at the down platform, so that he might ride with it to a siding near the place where he had to call one of the men.

There was no need for Masterman to take such a course, and, as I am assured that he had been warned against passing between vehicles standing in close proximity, I can come to no other conclusion than that the accident was solely attributable to the deceased man's own want of caution.

I find that there are no instructions in regard to the protection of men while engaged cleaning carriages on this system, and for the safety of the men so employed I suggest the advisability of issuing regulations to this effect, and I understand that the Company are willing to take the matter in hand at once.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON, BRIGHTON, AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of February 12th, I have held an inquiry into the circumstances attending the accident which occurred on January 23rd, at Victoria station, on the London, Brighton, and South Coast Railway, whereby platelayer Cox was fatally injured.

About 4.15 p.m. Cox and another platelayer named Benjamin Matthews were engaged in lifting a timber of a crossing on what is known as the "out" line. Adjacent to this line is No. 6 inwards line. Matthews, who was facing the station, was supporting the timber with a bar, while Cox, whose back was towards the station, was packing it up. A passenger train was running into the station on No. 6 road, and at the same time a light engine was leaving the station on the "out" road. As soon as Matthews noticed the light engine approaching he called out "Look-up," and lay down in the six-foot space, but Cox endeavoured to cross the "out" road in front of the engine. He was run over by the engine and fatally injured. William Elliott, the driver of the light engine, which was running tender first, states that he did not see Cox at work as his attention was confined to the advance repeater signal, which was against him. It has never been the practice to employ "look-out" men while ordinary maintenance operations are in progress in Victoria Yard, and, as the men were well aware that their safety depended entirely on their own vigilance, I am of opinion that this accident must be attributed to an error of judgment on the part of Cox. I consider, however, that having



Porters and others are warned against crossing the rails in front of trains and engines, and as Purchase had over 18 years' experience of station work, I consider it was very unwise on his part to attempt to take the barrow across the rails in front of an engine which was so close at hand. Purchase must therefore bear the responsibility for the accident, which was due to his own want of caution.

I must say, however, that I think driver Mockford and fireman Coughtry cannot have been keeping a careful look-out, otherwise they might have seen the position of the barrow and the accident would have been avoided.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON BRIGHTON AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
21st March, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in accordance with your Order of March 18th, the result of my inquiry into the causes of the fatal accident which occurred on the 5th March, to carriage-cleaner G. H. Paddington at New Cross, on the London Brighton and South Coast Railway.

At 4.45 p.m. Paddington, who had been engaged cleaning carriages standing in No. 9 road in the down goods sidings, stepped into the four-foot way between some stationary trucks in No. 10 road for the purpose of conversing with cleaner Spurling who was engaged inside one of the carriages. While he was in this position, Spurling saw that the trucks were being closed up, and warned Paddington of his danger, but he apparently became confused, and in attempting to get clear was caught between the buffers and crushed with fatal results.

There was no need for Paddington to stand in such a place, nor had he any right to be there, and as I find he had been repeatedly warned against placing himself in such positions of danger I consider the accident was entirely due to the deceased lad's own want of caution.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## METROPOLITAN AND METROPOLITAN DISTRICT JOINT RAILWAYS.

~~-----~~ Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
10th February, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in accordance with your Order of January 25th, the result of my inquiry into the circumstances attending the accident which occurred on the 14th January to carriage-cleaner George Hearn at South Kensington Station, on the Metropolitan and Metropolitan District Joint Railways.

In this case Hearn was engaged lighting the lamps of a train of empty coaches standing in No. 6 siding, and when he was on the roof of one of the carriages the train was drawn out of the siding by direction of shunter Salter, who asserts that he asked Hearn if he was all right, and, on receipt of a reply in the affirmative, immediately signalled the driver to go ahead. Hearn, however, states that he received no warning of what was to be done, except that some one shouted "Hang on" when the train was moved, and he accordingly knelt down, but not sufficiently clear to pass with safety below the girders of an overbridge at the east end of the station with which his head came in contact, and he was somewhat injured.

The statements of the two men are contradictory as regards the warning given and received: however, this is of little consequence, as shunter Salter admits that he was aware of Hearn's position when signalling to the driver to move the train, and for doing so I consider he is to blame. I am inclined to think that Hearn must have known that the carriages were going to be shunted, and elected to remain on the roof of the coach until he had completed the lighting. If this supposition be correct, Hearn was equally to blame for unnecessarily exposing himself to danger.

It would appear that carriage cleaners have not been in the habit of informing the person responsible for the movement of the coaches before commencing their work, and I would recommend that they be instructed to do so in future, and also warned against the dangerous practice of remaining on the roofs of carriages while they are being shunted.

I have, &c.,  
JOHN P. S. MAIN,

The Assistant Secretary,  
Railway Department, Board of Trade.

### METROPOLITAN DISTRICT RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

24th April, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in accordance with the Order of April 9th, the result of my inquiry into the causes of the accident which occurred on the 31st March to cleaner Joseph Sheppard at Lillie Bridge locomotive sidings, on the Metropolitan District Railway.

At 12.50 a.m. Sheppard was engaged in cleaning the bogie wheels of an engine which was standing outside the running shed on No. 1 road, and while he was so employed, with his right foot resting on one of the rails, another engine was brought back on the same road by driver Shaw, and coming against the standing engine moved it slightly, with the result that Sheppard's toe was crushed by one of the bogie wheels.

Driver Shaw assures me that he gave the usual whistle when entering the siding to warn the cleaners working at the standing engine, but Sheppard failed to hear the warning.

The following clause is embodied in the general instructions to engine men with regard to the movement of locomotive engines:—

"4. As a precaution against mishap, all authorised persons moving an Engine with steam, or those coupled to it, or likely to be moved by it, must, before setting such engine in motion *SOUND THE WHISTLE LONG AND DISTINCTLY* as a warning to all persons to get clear."

And as Shaw apparently complied with it he cannot be held responsible for failing to give sufficient warning. It therefore appears that the system in force at present is hardly satisfactory, and I would suggest that in future personal warning should be given to cleaners and others engaged at engines *likely to be moved*, and an acknowledgment obtained from them by the person responsible for the movement.

It is also desirable that an instruction of this description should be posted in a conspicuous position for the information and guidance of the men concerned.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

11th February, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in accordance with your Order of January 23rd, the result of my inquiry into the circumstances

attending the accident which occurred on the 2nd January, whereby coalman W. Ford was killed, and fireman J. F. Fox and coalman C. Blower were injured, at Burton locomotive shed, on the Midland Railway.

In this case four waggons were standing at the coal stage, which is approached from either direction by a considerable rising gradient. As it was necessary to draw two of the waggons away they were uncoupled, and Ford, after withdrawing a sprag from the wheel of the leading waggon, returned to the coal stage. When the engine was coming against the trucks Ford apparently realised that the brakes were not pinned down on the two waggons in which Fox and Blower were working, and in trying to pass between the trucks, (it may be assumed to secure them) he was knocked down and run over, with fatal results.

The impact when the engine came against the waggons caused the two trucks, which were uncoupled and not secured in any way, to move, and running down the incline they collided with a stop block, and Fox and Blower, who were inside the waggons, were somewhat injured.

Coalmen are instructed that "loaded waggons must be spragged and the brakes put down of all waggons standing at the coal stage." This was not done by Ford, who was in charge, and as he had over eight years' experience of the work, and the instructions were posted up for his guidance, the accident can only be attributed to the deceased man's disregard of orders, and want of caution.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
4th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 12th, the result of my inquiry into the causes of the accident which occurred on the 17th January to fireman J. Taylor at Appleby, on the Midland Railway.

Taylor was acting as fireman on the engine of a goods train which was booked to stop at Appleby for the purpose of taking water. When approaching the station he evidently went to the back of the tender (although he has no recollection of the circumstances), to be in readiness to receive the water column hose so soon as the engine came to a stand. While he was in this position his head came in contact with an overhead footbridge, and he was thrown down and severely injured.

Taylor went to the back of the tender without his driver's knowledge or sanction, and as there was no necessity for his doing so until the engine had come to rest, he alone is to blame for the mishap. His want of caution in this instance is particularly emphasised by the fact that he had signed for, and was in possession of, a notice warning engine-men against such a practice.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
10th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of February 25th I have held an inquiry into the circumstances attending the accident which occurred on February 5th at Peterborough, on the Midland Railway, whereby fireman William Hales was injured.



About 8.45 a.m. guard Walter Stafford, who was working with the yard pilot engine, wished to place a loaded coal waggon in the locomotive siding. There were 17 waggons attached to the engine, the coal waggon being at the end. The waggons were on the shed road, which leads both to the locomotive siding and the ash pit road, the points being normally set for the latter. Three engines were standing close together on the ash pit road, one of them being foul of the locomotive siding. Stafford shouted to wharf-foreman William Bond, who happened to be passing, and requested him to hold over the points for the locomotive siding. Bond did so, and Stafford uncoupled the coal waggon and instructed the pilot driver to set back, with the result that the waggon collided with the engines. Hales, who was engaged in removing ashes from the smoke-box of the third engine, was thrown against the tender of the second engine and sustained injuries to his back.

It was no part of Bond's duties to hold the points, and he did so merely to oblige Stafford. No doubt Bond would have acted more wisely if he had ascertained whether the road was clear before moving the points, but the responsibility for the accident must rest with Stafford, who should not have signalled to the driver to set back until he was satisfied that the road was clear.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
12th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 29th, the result of my inquiry into the causes of the accident which occurred on the 14th March to engine driver W. C. Mitchell at Swansea, on the Midland Railway.

Mitchell had worked a train into Swansea, and after arrival, when moving the engine, he found it was necessary to supply one of the cylinder lubricators with oil. He accordingly went to the front of the engine, by way of the top framing, for this purpose, and while he was engaged at the work a signal was received from the signalman that the engine could be moved ahead, and Mitchell instructed his fireman to do so. After completing the work Mitchell endeavoured to return to the footplate, but slipped on the top framing, and falling to the ballast was considerably injured.

It was not necessary to fill the lubricator while the engine was in motion, nor was it necessary to stand on the framing to perform the work, and therefore Mitchell must accept the consequences of his uncalled for and unnecessarily dangerous action.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
10th February, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of January 20th, I have held an inquiry into the circumstances attending the accident which occurred on January 7th at Clovenfords, on the North British Railway, whereby goods guard Thomas Black was fatally injured.

Black was acting as second guard with the 8.15 a.m. goods train from Hardengreen to Galashiels, which arrived at Clovenfords at 12.32 p.m. During shunting operations an empty coal waggon became derailed, owing to a pair of points having been reversed by the signalman without the knowledge of the guard who was in charge of the work.

One pair of wheels was off the road, and at the first attempt to re-rail the waggon, these wheels were brought on to the road, but the other pair became derailed. The waggon was standing near the loading bank, and the engine was run round and attached to the other end of the waggon. Black put some packing, consisting of a sleeper and a sprag, in front of the wheel nearest to the loading bank, and the head guard, George Campbell, placed similar packing for the other wheel. Black told Campbell that he was ready, and the driver was told to go ahead. When the wheels had mounted the packing they passed over the rails, and the rear end of the waggon swung sharply towards the loading bank. Black was caught between the waggon and the loading bank, and received injuries which proved fatal.

The swinging of the waggon was probably due to the curvature of the line at this point. No doubt Black, who had been a goods guard for seven years, would have acted more wisely if he had stood further away from the waggon while it was being drawn forward, but he evidently did not realise the danger of his position, and I am of opinion that the accident may be attributed to misadventure.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
11th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 12th, the result of my inquiry into the causes of the fatal accident which occurred on the 31st January to guard James Lumsden at Portobello, on the North British Railway.

Lumsden, who was working as guard with the 9 p.m. goods train Granton to Portobello, arrived with his train at the West box of the latter station at 11.27 p.m., and proceeded to walk down the sidings for the purpose of ascertaining the number of waggons which had to be picked up for the return journey. At 11.40 p.m. head shunter Cunningham, while walking towards the east end of the sidings, found Lumsden lying in the four-foot way of the Granton siding, with both his legs run over, his injuries being of such a severe nature that he died shortly afterwards.

The train which Lumsden had to work was being made up in the Granton siding, and it was necessary for him to couple the waggons together, see that they were fit to travel, and also to examine the destination labels.

Seven waggons had been loose shunted into the Granton siding to form part of the train, and it would appear that Lumsden, when crossing the rails from the south to the north side in front of these waggons, failed to notice their approach, and was knocked down and run over.

I am unable to obtain reliable information as to whether the waggons were labelled on both sides, but as I am assured that they were all labelled on the south side, and as Lumsden was proceeding from this side to the north side, it is improbable that he crossed the rails for the purpose of examining the labels, but rather to couple the waggons together.

Although in this case the accident cannot directly be attributed to the fact that the waggons were not labelled on both sides, yet the necessity for doing so is very great, with a view to prevent accidents to the staff engaged in shunting operations; and as I find it is not a universal practice to so label waggons or enforce compliance with such a custom before receiving them from private owners by this Company, it would appear that the operation of Rule II. of the Prevention of Accidents Rules, 1902, will have a good effect.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W..

4th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 12th, the result of my inquiry into the causes of the accident which occurred on the 20th January to guard W. J. Webb at Dairycoates engine sheds, on the North-Eastern Railway.

In this case it was necessary to release a tender which was standing behind two "dead" engines on the outside road. To do this the shunting engine was attached to the two "dead" engines and tender which were coupled together by Webb, and they were drawn clear of the points, where the tender was uncoupled and placed on one of the inner roads, the two "dead" engines being replaced on the outer road. Webb, however, was not satisfied with the three-link coupling held in the tender drag box by the draw-bar pin, but desired to substitute a longer five-link coupling, and so informed driver Armstrong, who was working the shunting engine. After Webb had signalled the driver ahead over the points leading to the inner road on which the tender was standing, he ran back with the object of changing the couplings, but when he was in the act of doing so the engine came back and he was crushed between the buffer plates.

Driver Armstrong received a signal from his fireman to the effect that he had to come back steadily, and fireman Jenkins asserts that Webb in running back to the tender waved his arm. This is possible, and no doubt Jenkins mistook this action as indicating that the engine had to come back. However, I think that had a better look-out been kept the position in which Webb was standing might have been seen and the accident avoided.

Webb rather unwisely omitted to inform Armstrong where and when he proposed changing the coupling, and had he done so no doubt more care would have been exercised.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

4th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 12th, the result of my inquiry into the causes of the accident which occurred on the 28th January to permanent-way labourer J. G. Sheen, near Withernsea, on the North-Eastern Railway.

In this case Sheen, in company with four other men, was riding on a truck forming part of a ballast train loaded with spoil, which was being propelled from a cutting to a point some 300 yards distant, where it had to be unloaded. After the engine had been brought to a stand, but before the waggons had come to rest, owing to the stretch of the couplings, Sheen attempted to release the catch, retaining the side door, and in doing so lost his balance and fell to the ground, sustaining slight injury.

The mishap appears to have been of an accidental nature.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

10th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with your Order of February 25th, I have held an inquiry into the circum-

stances attending the accident which occurred on February 5th at Milford, on the North-Eastern Railway, whereby goods porter Joseph Rhodes was injured.

Rhodes is one of the tranship-men at the Milford Junction tranship-stage. About 1.45 p.m., with the assistance of porter John Bradley, he was unloading a large case from a waggon standing at the stage in No. 6 road. At the same time guard John Blesby, who was in charge of the 12.20 p.m. pick-up goods train from Knottingley to Marsh Lane, shunted two empty horse boxes into No. 6 road, causing the other waggons in the road to be moved. No warning was given to the tranship-men, and the case fell against Rhodes, bruising his instep. Guard Blesby admits that he failed to carry out Rule 112a of the Railway Clearing House Rule book, and he must be held responsible for the accident.

From the evidence it appears that Rule 112a had been frequently violated at this tranship-stage, but Rhodes had neglected to report the fact. The other tranship-man, porter Bradley, was not in possession of a Rule book, and was not aware of the rule. It is to be hoped that the Company will supply Bradley with a Rule book and also take steps to ensure that the rule referred to is strictly enforced in future.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
10th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with your Order of February 25th, I have held an inquiry into the circumstances attending the accident which occurred on February 6th at Selby, on the North-Eastern Railway, whereby fireman Alfred Singleton was injured.

Singleton was fireman on the Hull district ballast train, which was standing at the north end of the Doncaster down independent line. Singleton whistled for the signal to allow the train to come out on to the main line, and then, without informing his driver (Geo. Metcalfe) of his intention, got off the foot-plate in order to insert a wooden wedge in the front damper of the engine. While Singleton was adjusting the wedge, the signal was lowered and Metcalfe started the train. Singleton's left arm was between the spokes of the middle driving wheel, and was cut off by the outside rod. There does not appear to have been any real necessity for the wedge to be used, but even if Singleton considered that it was necessary to use it, he should have informed his driver before placing himself in such a dangerous position. The accident must be attributed to want of caution on the part of the injured man.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
25th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 10th, I have held an inquiry into the circumstances attending the accident which occurred on March 1st at York, on the North-Eastern Railway, whereby waggon-repairer Arthur J. Baker was fatally injured.

Nine waggons, which required repairing, were standing in the "Old Weigh" road outside the waggon shops, and Mr. Benson, the foreman in charge, instructed assistant

foreman Mark Theakston to set some men to work at them. The men commenced to work about 7 a.m., and a red flag was placed on the end waggon as a protection. This waggon was about 66 yards from the points leading into the siding. Theakston left the siding about 7.30 a.m., and did not return until after the accident. The weather appears to have been slightly misty from 6 a.m., but after 7.30 a.m. it was decidedly foggy. About 8 a.m. shunter William Jowsey wished to place two waggons in the "Old Weigh" road, and they were "loose shunted" into the road, after Jowsey had been informed by his assistant, George Glew, that the points were set for the siding. The two waggons came into contact with the first waggon in the siding on which the red flag had been fixed. Baker was at the back of this waggon, drilling some holes in the end plank with a brace. He was apparently forced against the buffer of the next waggon, and the handle of the brace was driven against his chest causing fatal injuries.

Owing to the fog, Glew, who was standing near the points, was unable to see the red flag on the waggon, and neither he nor shunter Jowsey were aware that any men were working at the waggons. It is not usual for any repairs to be done in this road before breakfast during the winter months. This was the second occasion this year on which the waggon repairers had worked in this road before breakfast, but in neither case had the shunters received any notice of the fact. If there had been no fog the flag could have been seen plainly from the points leading to the "Old Weigh" road. At the same time I am of opinion that the shunters should, as an extra precaution, have been advised that the repairers would be working before breakfast.

The evidence as to the density of the fog at 7.30 a.m., when assistant foreman Theakston left the men, varies considerably, but I am not satisfied that the weather was sufficiently clear for him to have been justified in relying on the red flag as a protection, especially as the shunters had not been advised of the commencement of the repairing operations. There is no doubt that the fog became considerably more dense after 7.30 a.m., and the men working at the waggons should have realised the fact that the red flag was not a reliable protection for them. There were 16 men working at the waggons in the road, including Baker, and the responsibility of securing their own safety rested equally with all of them.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 9th, I have held an inquiry into the circumstances attending the accident which occurred on March 28th at York, on the North-Eastern Railway, whereby porter Alfred Fawcett was injured.

It was part of Fawcett's duty to unload tranship fish from a van attached to the Great Northern passenger train due at York at 1.6 a.m. He was waiting at the south end of No. 5 platform as he expected the van to be near the rear end of the train. When the train was running into the platform he noticed that the van was at the front end, and he attempted to ride up the platform on the front brake van. He failed, however, to catch the hand rail, and fell with his legs between the footboard and the edge of the platform. The train was stopped by the guard, and Fawcett fortunately escaped with a few bruises.

The accident was due to a breach of Rule 23 of the Railway Clearing House Rule book on the part of Fawcett.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
4th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 4th, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 13th January to assistant gas fittings examiner Everitt Robinson at Rotherhithe Road, on the South-Eastern and Chatham Railway.

In this case Robinson joined a train, which was running from Rotherhithe Road to North Kent West Junction, and climbed to the roof of one of the carriages for the purpose of cleaning the lamp glasses. While Robinson was engaged at this work he raised himself, and his body coming in contact with a signal bridge he was thrown from the train and run over, sustaining injuries which shortly afterwards proved fatal.

The following instruction is laid down in the Company's Appendix to the Working Time Table :—

" LAMPING TRAINS.—The staff engaged in this duty are specially cautioned not to pass along the roofs of carriages while they are in motion. Station-masters and Inspectors must duly report any instance of the regulation being disregarded."

I find, however, that no attempt has been made to comply with, or enforce, the order at this place ; and I therefore consider the primary cause of the accident was due to the lax manner in which the work has been conducted.

The Company should immediately take steps to enforce compliance with the regulation by the staff at Rotherhithe Road, and moreover the instructions should be conspicuously exposed for the information and guidance of the men.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
4th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of March 25th, 1902, I have held an inquiry into the circumstances attending the accident which occurred on January 17th near Charing Cross, on the South-Eastern and Chatham Railway, whereby driver John Jameson Heugh was fatally injured.

Shortly before midnight Heugh had turned his engine on the turntable at Belvedere Road, and was waiting to return to Charing Cross. Owing, apparently, to a temporary failure in the turntable locking gear, the signalman was unable to lock the table in the position in which Heugh had left it, and he requested Heugh to turn the table "end for end." Heugh left the engine for this purpose and returned in a few minutes. He stood on the ground in the space between the turntable road and the up main line and told his fireman, Alfred Kent, to whistle for the signal. Just after the whistle had been sounded an up passenger train passed on the main line. The signal was then lowered for the turntable line, and Kent called to Heugh to inform him of the fact. Heugh replied that he could not move, and he was found lying opposite his engine. His legs had been run over by the passenger train, and his body was lying between the main line and the turntable line. The space between these lines is about seven feet, and there was a heap of cinders just opposite the engine. As there is no evidence to show whether Heugh stumbled over these ashes and fell in front of the passenger train, or whether he was standing foul of the up main line and failed to detect the approach of the train, I consider that the accident may be attributed to misadventure.

It is occasionally necessary for engines to be oiled, &c., when they are standing at this spot, and it is important that no unnecessary obstruction should be allowed to remain in a path so close to the main line. Owing to extensive permanent way alterations at

present in progress the road is not ballasted up to the proper level, and it is to be hoped that this will be effected as soon as possible. I understand that the Company are about to provide a proper pit for the reception of the ashes from the engines, and this should prevent the present practice of depositing the ashes in the space between the lines.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR, 21st February, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of February 12th, I have held an inquiry into the circumstances attending the accident which occurred on January 30th at Manstone level crossing near St. Lawrence, on the South-Eastern and Chatham Railway, whereby gateman William Larkins was fatally injured.

About 2.35 p.m. a special goods train from Minster to Margate was approaching the crossing. The engine was running tender first, but both the driver and fireman had a good view of the crossing for more than a quarter of a mile. When about 350 yards from the crossing, the driver sounded his whistle as usual. The crossing was apparently quite clear till the engine was within about 90 yards of it, when the driver noticed that the gate on the down side was just foul of the down line. He shut off steam, sounded the whistle, and applied the brake. At that moment Larkins, who had been standing on the up side of the crossing, crossed over in front of the train. The engine struck the gate, and Larkins was knocked down and received injuries which subsequently proved fatal. The weather was stormy and a high wind was blowing down the road.

I am of opinion that Larkins had failed to properly fasten the gate when previously closing it across the road, and that the force of the wind brought the gate just foul of the down line. Larkins apparently did not notice the position of the gate until the driver whistled for the second time. He evidently considered that he would be able to push the gate clear before the train reached it, and the accident must be attributed to his want of judgment in this respect.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR, 10th March, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 25th, the result of my inquiry into the causes of the accident which occurred on the 31st January to cleaner Alfred W. Gibson at Battersea engine sheds, on the South-Eastern and Chatham Railway.

Gibson was cleaning part of the motion of an engine standing on No. 10 road, with his body between the crank axle and fire-box, when the engine was moved slightly owing to another engine, which was standing on the same road, being closed up against the engine at which Gibson was working, and he was crushed between the connecting rod and the fire-box.

The accident was primarily due to failure on the part of shed shunter Gibson, who was responsible for the movement of the engines, to give warning in compliance with instructions of which he was aware.

It is to be hoped that the accident, which was fortunately not attended with very serious results, will have the effect of ensuring more care being taken in future by the shed shunters at this place to strictly carry out the regulations laid down in connection with the movement of engines.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
18th March, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with your Order of February 25th, the result of my inquiry into the causes of the fatal accident which occurred on the 12th February to carriage-cleaner Thomas Gilham at Rotherhithe Road, on the South-Eastern and Chatham Railway.

Gilham was engaged cleaning the brasses on a bogie coach standing in No. 5 road at 4.15 p.m., and, after having completed one side, was in the act of passing between the end of the coach and another standing about three feet distant when the carriages were closed together by the shunting engine, and Gilham was crushed between the buffers, sustaining fatal injuries.

No warning was given by shunter Rimell, who was in charge of the shunting engine, nor had he assured himself that any men who might be working at the carriages were clear before bringing the engine back, and for failing to do this I consider he was somewhat remiss, as he was aware that it is usual for cleaners to be employed at any of the carriages standing in the yard. The deceased man was also to blame for attempting to pass between carriages which were standing so close together, as he had been warned against doing so only a few days before; but as he had only been in the service about 17 days his lack of experience must be taken into consideration.

I find there is no system in force at this place for the protection of men when engaged in cleaning carriages, the work being performed in many cases while the coaches are in motion. This is most undesirable, as the work is of such a nature that every care should be taken to prevent the movement of the carriages while the men are at work in them, and I consider that the Company should adopt measures for the protection of carriage cleaners similar to those in force on other railways without delay.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.



## APPENDIX C.

## REPORTS OF SUB-INSPECTORS A. FORD AND J. J. HORNBY ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN	<p>Date of Accident — 4th February, 1902. Place at which Accident happened — Hartwood. Name of Person killed — Andrew McGuire. Age of Person killed — 22. Capacity in which employed — Labourer with ballast train. Number of booked working hours per diem — 10. How long on duty at time of Accident — 8½ hours.</p> <p>Description of Accident — On the afternoon in question the deceased formed one of a gang of men who were filling some ballast into the waggons of a ballast train at the west end of Hartwood Station, after which the men were instructed by ganger Edward McGettigan to get inside the waggons to ride to the east end of the station. While the train was being propelled there McGettigan rode on the step of the brake-van. When the vehicles forming the train were opposite to the ballast to be lifted he signalled the driver to stop, and when the engine brakes were applied for that purpose McGuire was thrown over the end of the waggon he was riding in, falling with his head on the rail, where it was caught and run over by one of the waggon wheels, causing instantaneous death.</p>	<p>The deceased had only been in the service nine days. He had not been supplied with a copy of the rules, nor had them read and explained to him by ganger McGettigan, in accordance with Rules 17(a) and 241 respectively. Further, McGettigan is to blame for allowing the men to get inside the waggons (which were nearly full) instead of the brake-van.</p> <p>Engine-driver John Stewart is to blame for neglecting to sound his engine whistle before reducing speed preparatory to stopping as directed in rule 274. In addition, Rule 216 appears to have been regularly ignored by ballast-guard Robert Gordon, who has been in the habit of permitting McGettigan to give the starting and stopping signals to engine-driver John Stewart, who has worked to McGettigan's signals instead of Gordon's.</p> <p>In my opinion the mishap was chiefly due to the men having been permitted to drift into an irregular method of working, contrary to the rules and regulations of the Company.</p>	<p>For future safety it is desirable that the Company should take steps to strictly enforce compliance by all concerned with their own rules and regulations.</p> <p>J. J. H.</p>
	<p>Date of Accident — 6th February, 1902. Place at which Accident happened — Denny. Name of Person injured — Daniel Cameron. Age of Person injured — 50. Capacity in which employed — Goods Porter. Number of booked working hours per diem — 12. How long on duty at time of Accident — 8 hours. Nature of injury — Head and back injured.</p> <p>Description of Accident — On the afternoon in question Cameron was with a passenger engine making a few shunts in the goods yard. He shunted one waggon into the Crane Road, and then took the engine into the adjoining siding to place seven other vehicles in position, after which, while the engine was coming out of this siding with one waggon attached, he rode upon the axle-box of that vehicle, and when approaching the fouling point between the two sidings he observed that the vehicle he had placed in the Crane Road siding was too close to admit of his body passing between it and the one he was riding upon, and he attempted to get inside the latter, and while doing so his legs caught the waggon standing in the Crane Road siding and he was thrown to the ground, with the result stated above.</p>	<p>In this case Cameron left the vehicle standing in the Crane Road siding "foul" of the adjoining siding contrary to Rule 184 (c), and he admits that he is alone to blame for the accident. At the same time he thought that by leaving the waggon in that position he was carrying out the rule mentioned.</p>	<p>The accidents from similar causes are so numerous that, for future safety, it is desirable that the Company should consider the advisability of giving definite instructions to all concerned as to what the minimum clearance must be between vehicles at the fouling points.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN— <i>cont.</i>	<p>Date of Accident—25th February, 1902. Place at which Accident happened—St. Rollox. Name of Person injured—William McAvoy. Age of Person injured—18. Capacity in which employed—Surfaceman. Number of booked working hours per diem—11. How long on duty at time of Accident—10 minutes. Nature of Injury—Right leg fractured and severely lacerated in two places.</p> <p>Description of Accident—McAvoy and ganger James McGuinness were engaged opening out the permanent way at a set of points leading from No. 12 to 16 siding, when McAvoy was knocked down by two waggons which were being shunted along the former siding, and had his right leg so severely injured that he was still off duty at the time of my inquiry.</p>	<p>In this case ganger McGuinness in using the discretion given to him in Rule 273(f) did not appoint a look-out man but acted in that capacity himself. If he had given his whole attention to that duty he should have seen the waggons by which McAvoy was knocked down approaching in time to have prevented the mishap, consequently he must be held responsible for the accident.</p> <p>J. J. H.</p>	
	<p>Date of Accident—10th March 1902. Place at which Accident happened—Motherwell North Colliery. Name of Person injured—George Urquhart. Age of Person injured—26. Capacity in which employed—Brakesman. Number of booked working hours per diem—11. How long on duty at time of Accident—2½ hours. Nature of Injury—Right ankle sprained.</p> <p>Description of Accident—Urquhart was working in charge of a Motherwell pilot engine which, on the morning in question, was employed for working traffic to and from Messrs. Merry and Cunningham's North Motherwell Colliery. The colliery is situated on a branch line, the property of the North Motherwell Colliery Company, which is about a mile in length, and connects with the Caledonian Railway Company's Sidings at Motherwell.</p> <p>At about 11.30 a.m., during shunting operations at the colliery, it was necessary for eleven empty and six loaded coal waggons to be drawn from the "curve" and propelled into the "straight" siding. As the waggons were being propelled Urquhart rode on the leading wagon, but whilst doing so he noticed that the third and several following waggons had left the rails, and fearing the wagon on which he was riding might be pulled over he jumped off, and in doing so he alighted on one of the rails of the adjoining siding.</p>	<p>The waggons left the rails at the hand points leading from the "curve" to the "straight" siding, owing to the head breaking off the end of the stretcher or tie-rod, which thus disconnected the points, and was the primary cause of this accident.</p>	<p>When making my inquiry, I noticed that nearly all the different hand points on this colliery branch line were in a very unsatisfactory condition. In addition to the tie-rod connections being far too free, several of the connecting pins were kept in position by small lengths of wire, and in one case a small piece of wood was used for a cotter.</p> <p>For the future safety of the Railway Company's servants, I suggest that the Colliery Company should be asked to consider the advisability of putting the points and connections in a safe condition.</p> <p>A. F.</p>
CHESHIRE LINES ...	<p>Date of Accident—31st January, 1902. Place at which Accident happened—Heaton Mersey sidings, near Stockport. Name of Person injured—Robert Fish. Age of Person injured—29. Capacity in which employed—Fireman. Number of booked working hours per diem—11. How long on duty at time of Accident—10½ hours. Nature of injury—Head injured.</p> <p>Description of Accident—Fish is in the service of the Great Central Railway Company, and with his driver, Joseph Tonge, was engaged taking engine No. 136 from the engine-shed to the down loop. When the engine was approaching</p>	<p>The bottom of the bridge is 14 feet 7 inches above rail level. Fish knew its position, but momentarily forgot about it, and the mishap appears to have been due to misadventure.</p>	<p>For future safety these tool boxes should be removed from the rear to the foot-plate end of the tender, so that the contents may be obtained by the men, without incurring the risk of clambering over the coals whilst going to and from the rear of the tender for that purpose.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CHESHIRE LINES— <i>cont.</i>	a bridge, which carries the Midland Railway over the Cheshire Lines Railway, and which is fixed near to the outlet from the engine-shed. Fish left the foot-plate and clambered over the coals to the rear of the tender, to get a hard brush out of the tool box fixed there, and while so engaged his head came in contact with the bridge in question, and he was knocked down amongst the coal, with the result stated above.		
EAST AND WEST YORKSHIRE UNION.	<p>Date of Accident—6th January, 1902. Place at which Accident happened—Rose Pit yard, Rothwell. Name of Person injured—John Judson. Age of Person injured—17. Capacity in which employed—Engine-cleaner, acting as Fireman. Number of booked working hours per diem—11½. How long on duty at time of Accident—2½ hours. Nature of Injury—Head out and back bruised.</p> <p>Description of Accident—On the night in question, when Judson booked on duty at 6.30 p.m., he was sent to relieve fireman H. Crossley, who was working with tank engine No. 3, and at 9 p.m., while that engine was travelling along the running line proceeding light from the yard to Rose Pit sidings, Judson was looking over the side of the engine cab, to see whether the left hand injector was working properly, and while doing so his head came in contact with the leading waggon standing in No. 2 siding, adjoining the running line, causing him to be knocked off the engine on to the ground, with the result stated above.</p>	<p>The mishap was due to the place being in absolute darkness, and the leading vehicle in No. 2 siding having been left standing too near the fouling point of the running line. I was unable to ascertain who left the vehicle in that position, but even if I had been able to obtain this information I could not have blamed the person for doing so, as none of the men employed by this Company have been supplied with rules or any instructions as to the space to be allowed between the fouling points of either running lines or sidings, and so long as the vehicles are clear for other vehicles or engines to pass, it is considered to be sufficient.</p>	<p>For future safety it is desirable that the Company should, without delay, issue definite instructions to all concerned, stating what the minimum clearance must be between vehicles left standing near the fouling points in sidings or running lines. Since this mishap fixed lamps have been provided near the spot where it happened, and the lighting now appears to be satisfactory.</p> <p>J. J. H.</p>
GLASGOW AND SOUTH-WESTERN.	<p>Date of Accident—24th January, 1902. Place at which Accident happened—Ferguslie goods yard, Paisley. Name of Person injured—Alexander McDonald. Age of person injured—35. Capacity in which employed—Platelayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—8½ hours. Nature of Injury—Right leg run over, necessitating its amputation.</p> <p>Description of Accident—McDonald was one of 12 men who were engaged with a ballast train that was used for conveying old sleepers from Glasgow for storage at Ferguslie. At about 2.45 p.m., while at the latter station, the ballast train had to be taken from the goods yard to a relief line, to allow nine waggons to be brought from the yard and taken to an adjoining branch line. Before the nine waggons could be taken to the branch line, the goods train engine had to be got from one end to the other, to do which, instead of the engine being run round, the guard, J. Savage, decided to tow the waggons into the relief line, towards the rear of the ballast train. When that was being done, in accordance with hand signals given by Savage, the waggons were run on to the relief line with such</p>	<p>There is no necessity for waggons to be towed at this station, as proper siding connections have been provided for engines to be run round vehicles, yet from the evidence given at my inquiry it appears to be a common practice at Ferguslie, under the plea that it saves time, which I am satisfied is not the case.</p> <p>In this case I am of opinion that guard Savage not only used bad judgment in towing waggons unnecessarily, but that he did so in a very careless manner, and that therefore he is to blame for the mishap.</p>	<p>For future safety I suggest that the Company should forbid the dangerous practice of towing waggons at this station.</p> <p>A. F.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations
GLASGOW AND SOUTH-WESTERN—cont.	<p>force that on their colliding with the brake-van at the rear of the ballast train, the latter was forced forward a distance of about four waggons' lengths, and by the impact McDonald, who was on the waggon next the van, was thrown over the end, and falling with his right leg across one of the rails the brake-van and three of the nine towed waggons passed over it.</p> <p>Date of Accident—3rd February, 1902. Place at which Accident happened — Whitehill Colliery branch, Skares. Name of Person injured—James Rowan. Age of Person injured—30. Capacity in which employed — Brakesman. Number of booked working hours per diem—11. How long on duty at time of Accident—1½ hours. Nature of Injury—Left shoulder dislocated.</p> <p>Description of Accident—The Whitehill Colliery branch is about a mile in length, and joins the Ayr and Cummock branch line at Skares. From the main branch line there is a short line leading south-east to a dead end from which the Colliery branch runs back westwards. Between the main line and the dead end referred to there is a loop provided for running round purposes.</p> <p>The colliery branch is owned by the Colliery Company, but the traffic is worked by the Glasgow and South-Western Railway Company. The men employed on the branch are stationed at Ayr, from and to which station, on the outward and return journey, morning and evening, they of course work booked trains. On the morning in question the engine and brake-van were run from the main line to the dead end, from which they were set back and attached to waggons standing in the loop by the assistant brakesman, D. Mitchell, whilst the brakesman, J. Rowans, walked back for the purpose of getting on the last waggon, in which he intended to ride to the colliery. Unfortunately, Rowans gave the starting signal, and the waggons were set in motion before he had got safely in the waggon, and whilst he was attempting to do so, owing to an unexpected jerk of the waggon, he was thrown to the ground with the result stated.</p>	<p>Owing to the formation of the line and its connections, it is usual for all waggons passing over the colliery branch to be propelled in both directions between the dead end or shunting neck and the colliery. The branch is on a rising gradient from the shunting neck, and to save an extra shunt it has been the practice, when going to the colliery, to keep the brake-van next to the engine, and for the brakesman to ride in the leading waggon. It was whilst the waggons were being drawn from the loop, and Rowans was getting in the then rear waggon for this purpose, that the accident occurred.</p> <p>Rowans fully admits that there is very little time saved in the practice adopted, and that the mishap was due to his own want of caution.</p> <p>The Company's attention having now been drawn to the irregular working, there is no doubt that for future safety they will insist on the brake-van being placed in front of the train when going to, as well as when returning from, the colliery, in which case the men can ride in it without risk.</p> <p>A. F.</p>	
GREAT CENTRAL ...	<p>Date of Accident—2nd January, 1902. Place at which Accident happened —East Marsh Sidings, Grimsby. Name of Person injured—Samuel Vamplew East. Age of Person injured—21. Capacity in which employed—Shunter. Number of working hours booked per diem—11. How long on duty at time of Accident—7½ hours. Nature of injury — Muscles of abdomen bruised.</p> <p>Description of Accident—From the East Marsh Goods Sidings there is a single siding leading into Gresham Street, along which it runs to Messrs. Knott and Barker's timber</p>	<p>Owing to the brake lever being on the right or off side of the waggon, it was necessary for East to be on that side, and the reason he gives for using his coupling pole for the purpose mentioned is that although he has been in the service since May last he has never seen a brake stick.</p> <p>The shed referred to is owned by the Railway Company, but is let to a private tradesman for horse stabling.</p>	<p>Since, and in consequence of, this accident, a portion of the shed has been removed, but even now it is only 3 feet 6 inches from the rail, which distance, owing to the formation of the siding, in my opinion, is insufficient. At my request the Company's district engineer who attended the Inquiry agreed to provide a clearance of at least 4 feet 6 inches.</p> <p>The lighting of the East Marsh Sidings is not at all satisfactory. I understand</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— <i>cont.</i>	<p>yard. In addition to the siding being on a five-chain curve, it is on a gradient of 1 in 50 falling towards the street. Between the Railway Company's boundary and the street there is a gate, beyond which all waggons are moved by horses owned by Messrs. Knott and Barker. Owing to the sharpness of the curve it is impossible to uncouple waggons standing on it, consequently, before they are propelled from the goods sidings the waggons are all uncoupled. On the morning in question, as three empty waggons were being propelled into position for the horse-shunters, shunter East necessarily attended the leading waggon for the purpose of applying the hand brake. To get good leverage he used his coupling pole for a brake stick, and, from some cause unknown, when he tried to remove it from off the brake lever he could not for the moment do so, with the result that the hook on the coupling pole caught his clothing and pulled him along with the waggon until he reached a shed standing only 2 feet 3 inches from the rail, between which and the waggon he was crushed and injured as stated.</p> <p>Date of Accident—7th January, 1902. Place at which Accident happened—North Staveley Junction, Woodhouse. Name of Person injured—William Lane. Age of Person injured—42. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—7½ hours. Nature of Injury—Face cut and left shoulder bruised.</p> <p>Description of Accident—Lane is in the service of the Midland Railway Company, and on the date in question he had worked in charge of the 7.45 a.m. mineral train from Derby to the North Staveley Colliery sidings, which are situated opposite to the Staveley Junction, Woodhouse. At about 3 p.m. he was engaged in shunting empty waggons from the No. 2 to the No. 1 empty waggon sidings, to do which, owing to the number of waggons attached, it was necessary for the engine to run from the shunting neck to the down main line. As soon as the last waggon had cleared the siding hand points Lane ran from the side of the waggons on to the down main line for the purpose of giving a hand-signal to the engine driver, but whilst in that position, failing to notice that a goods train was then running through the lead or junction from the up main across the down main to the up loop line, he was struck by the engine, and so injured that at the time of my Inquiry he was still off duty.</p> <p>Date of Accident—7th January, 1902. Place at which Accident happened—Aldwarke. Name of Person injured—William Wakefield. Age of Person injured—35. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How</p>	<p>I am of opinion that in this case the accident was due to the dangerous position of the shed.</p> <p>Owing to the formation of the sidings it is only occasionally necessary during shunting operations for an engine to run on to the main line, and even then when there are two guards engaged with the train, as in this case, it is quite possible for one of them to stand in such a position as to transmit signals to the driver without either of them getting foul of other lines. Lewis not only admits this, but he acknowledges that at the time of the mishap there was nothing to prevent him seeing or hearing the goods train approaching. I am therefore of opinion that the accident was due to his own want of caution.</p> <p>A. F.</p> <p>The mishap was due to Wakefield using his coupling pole as a brake stick contrary to the special instructions with which he had been supplied, for which there does not appear to have been any real</p>	<p>that the Company have this subject under consideration, and, for the safety of the staff, it is to be hoped they may arrive at an early decision.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— <i>cont.</i>	<p>long on duty at time of Accident—2 hours. Nature of Injury—Left knee injured</p> <p>Description of Accident—On the day in question Wakefield was conducting goods guard Henry Houghton from Mexbro' to Aldwarke, and during shunting operations at the latter place, at about 7 p.m., while eight waggons were running into Naylor's siding, he put down the brake lever of one of the waggons and afterwards placed his coupling pole on the top of the brake lever and underneath the waggon spring, pressing his weight upon the coupling pole for the purpose of bringing more pressure to bear upon the brake, but as the brake blocks were being forced hard against the wheel of the waggon the brake lever sprang upwards, causing the coupling pole to be thrown outwards and to strike his left knee, with the result stated above.</p>	<p>necessity; therefore the responsibility for the accident rests with himself. Further, there is no proof except Wakefield's own statement that the mishap did occur in the manner described, as he neither reported the matter to shunter W. Lamb, at Aldwarke, before leaving that station, nor to his foreman, at Mexbro, before going home, as he ought to have done. There are no fixed lamps provided in the sidings at Aldwarke, although the shunting during the dark is somewhat heavy, but I was assured by the Company's representative that arrangements are being made for the sidings to be lighted as early as possible.</p> <p>J. J. H</p>	
	<p>Date of Accident—9th January, 1902. Place at which Accident happened—Leicester. Name of Person injured—Henry Hillsden. Age of Person injured—21. Capacity in which employed—Fireman. Number of booked working hours per diem—9. How long on duty at time of Accident—40 minutes. Nature of Injury—Head injured.</p> <p>Description of Accident—Hillsden booked on duty, with engine driver Fred Lancashire, at 11.20 a.m., for the purpose of working the 12.10 p.m. passenger train from Leicester to Manchester and back with the 5 p.m. ex Manchester due at Leicester at 7.45 p.m. The engine left the locomotive yard at 11.55 a.m., and when approaching the north goods down starting signal, which was at danger, Lancashire brought the engine to rest; a few moments afterwards the signal was taken off, and Lancashire started the engine ahead. When the engine was at rest Hillsden left the footplate and went to the back of the tender for the purpose of removing the fire irons from there to where he could reach them from the footplate, and while so engaged, momentarily forgetting about the overhead girders of Branstone Gate Bridge (about 150 yards north of the signal referred to), he was struck by the southern girders and knocked down on to the tender, with the result stated above.</p>	<p>Hillsden attempted to get upon the top of the tender to remove the fire irons as the engine was leaving the locomotive yard, but Lancashire forbade him to do so, telling him that he would have plenty of time to remove them after the engine had been set against the train at the station. Instead of waiting until this was done, when the engine was brought to a stand at the signal mentioned he, unobserved by Lancashire, went to the back of the tender for the purpose stated.</p> <p>The responsibility for this mishap rests with Hillsden himself, as he not only disregarded his driver's instructions, but also unnecessarily exposed himself to danger contrary to Rule 24 (a).</p> <p>J. J. H.</p>	
	<p>Date of Accident—17th January, 1902. Place at which Accident happened—Woodhouse. Name of Person injured—Walter Finley. Age of Person injured—29. Capacity in which employed—Pilot Guard. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—5 hours. Nature of Injury—Right hand injured. Off duty 2 weeks.</p> <p>Description of Accident—At about 11 a.m. Finley attached the engine he was working with to 18</p>	<p>The mishap appears to have been accidental.</p> <p>J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— <i>cont.</i>	<p>waggons standing in No. 7 siding, and after going round both sides of the vehicles, and releasing all the brakes, he signalled the driver ahead. While the vehicles were being drawn out of the siding for shunting purposes he observed that the brake lever of the fourteenth vehicle from the engine was down, having apparently been jerked off the rest when the vehicles were started, and he attempted to lift the brake lever up with his hand, but finding it fast under the top part of the axle-box, for the purpose of releasing it he placed one end of his coupling pole against the axle guard and on to the top of the brake lever, pressing the latter downwards and then outwards, but as soon as it was clear of the axle-box it and the pole both flew upwards, causing Finley to lose his hold of the pole, one end of which fell between the spokes of the wheel. To regain his hold of the pole he attempted to grasp the end to which the hook is attached, and while doing so the hook inflicted a severe wound in the palm of his right hand, with the result stated above.</p>		
GREAT EASTERN ...	<p>Date of Accident—12th January, 1902. Place at which Accident happened—Buntingford. Name of Person injured—Samuel Parsons. Age of Person injured—22. Capacity in which employed—Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours. Nature of Injury—Right arm pinched.</p> <p>Description of Accident—Previous to the date of the accident Parsons had given notice to the Company that he intended to resign his position on the day following, and as his whereabouts was unknown he was not present at my inquiry, but from the evidence given it appears that during shunting operations on the night in question it was necessary for ten waggons to be run from the main single line to the back goods siding. The guard, William Futter, uncoupled the waggons from others attached to the engine, and Parsons stood near to the main line points for signalling purposes. As the detached vehicles were running in the siding, thinking they would not run clear of the crossing between the front and back sidings, Parsons called to the guard "They are not clear," on which, of course, Futter caused the engine and waggons attached to set back into the siding for the purpose of pushing the others clear. Apparently the waggons ran further in the siding than Parsons had expected, and then, as if thinking he might help them to run clear, forgetting he had called to the guard as stated above, he commenced to push at the buffer of the rear waggon, with the result that, as the attached waggons closed up to those detached, Parsons' right arm was slightly pinched between the buffers.</p>	<p>Having told the guard that the waggons would not run clear, Parsons ought to have expected that he would bring the engine and other waggons in the siding to push them clear, and he certainly acted unwisely in then placing himself in the position mentioned. I am therefore of opinion that the primary cause of the accident was his own want of caution; at the same time I cannot help thinking that had the yard been properly lighted, Parsons might have seen that the engine and waggons were being brought into the siding—in which case the accident would probably have been avoided.</p>	<p>Although nearly all the goods yard shunting at this station is done after dark, there is not a single fixed lamp provided, which for future safety I suggest the Company should seriously consider.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*.

7	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
EF—	<p>Date of Accident—14th January, 1902. Place at which Accident happened—Brandon. Name of Person injured—Henry Barnes. Age of Person injured—35. Capacity in which employed—Relief man. Number of booked working hours per diem—12. How long on duty at time of Accident—3½ hours. Nature of Injury—Right leg bruised.</p> <p>Description of Accident—As a relief man, Barnes is employed at different stations as required. For three months he had been engaged at Brandon, in place of a shunter who was ill. On the date in question at about 10.20 p.m., during shunting operations, whilst running up the sidings he stumbled over a cross or tie point rod, with the result previously stated. He was off duty 10 days.</p> <p>Date of Accident—14th January, 1902. Place at which Accident happened—Romford. Name of Person injured—George Willis. Age of Person injured—33. Capacity in which employed—Extra Platelayer. Number of booked working hours per diem—10. How long on duty at time of Accident—6½ hours. Nature of Injury—Head cut and side bruised.</p> <p>Description of Accident—Willis was employed with an extra gang of platelayers engaged on special main line work about a ½ mile west of Romford Station. At about 1.20 p.m. he alone was working at the ends of some crossing timbers in the up main line, and a warning was given by a look-out man that an up train was approaching. The train was stopped about 80 yards east of his position for the purpose of attaching a horse-box from a siding. Willis stood clear for some time, and then, apparently just after the train had been started, as if for the moment forgetting the warning, he stooped down and recommenced work, and whilst in that position, failing to notice the train approaching, he was struck on the head by the footstep of the engine.</p> <p>Date of Accident—15th January, 1902. Place at which Accident happened—Warren Hill. Name of Person injured—James M. Phillips. Age of Person injured—26. Capacity in which employed—Fireman. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—11½ hours. Nature of Injury—Third finger of left hand injured.</p> <p>Description of Accident—On the date in question Phillips, with his driver, Joseph Billing, booked on duty at 4.45 a.m. to work the 5.30 a.m. goods train from Cambridge to Ipswich and the return 10.50 a.m. goods train ex Ipswich to Cambridge. While working the latter train they were stopped by signal at Warren Hill, about one mile east of Newmarket. When the engine was at rest Billing left the footplate and walked along the outside framing to oil the slide</p>	<p>The Brandon goods yard is well lighted, and nearly every ordinary point rod is properly protected with side timbers, but on the night of the mishap there was much snow lying in the yard, which prevented Barnes seeing the position of the tie rod over which he stumbled.</p> <p>I am of opinion that in this case the accident was due to misadventure.</p> <p style="text-align: right;">A. F.</p> <p>I am of opinion that in this case the mishap was due to the injured man's own want of caution.</p> <p style="text-align: right;">A. F.</p> <p>The responsibility for this mishap rests with engine driver J. Billings. It was his duty to prevent Taylor exposing himself to danger, yet he instructed him to oil the spindle guide, which necessitated his leaving the footplate of the engine, and before Phillips had time to perform the oiling he set the engine in motion.</p>	<p>This is one of the many accidents which arise through the enginemmen being off the footplates while their engines are in motion, and for future safety it is desirable that the Company should be forced to issue stringent instructions forbidding this practice, and be informed that some of the other Companies have issued instructions to this effect with good results.</p> <p style="text-align: right;">J. J. H.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT EASTERN— —cont.	<p>valves. After doing so, and when returning to the footplate, he observed that the spindle guide required oiling, and called to Phillips to oil it. At the same moment the signal was taken off, and Billings then set the engine ahead, saying to Phillips, "I will move forward slowly, till you finish oiling"; but while the latter was doing so his finger was caught between the slide block and spectacle plate and so injured as to cause him to be off duty 3½ weeks.</p> <p>Date of Accident—4th February, 1902. Place at which Accident happened—Wymondham. Name of Person injured—William Townsend. Age of Person injured—46. Capacity in which employed—Shunter. Number of booked working hours per diem—12, with one hour off for meals. How long on duty at time of Accident—11 hours. Nature of Injury—Left ankle sprained.</p> <p>Description of Accident—On the night in question Townsend, while engaged in shunting operations, was running alongside some waggons in motion for uncoupling purposes, when he slipped into a rut or open watercourse and so injured his left ankle as to cause him to be off duty 3 weeks.</p>	<p>There are several similar ruts or open water courses in this yard, and during heavy rains the ballast is washed away, leaving dangerous holes in the paths it is necessary for the men to take during shunting operations.</p> <p>The mishap was due to the rut being so badly exposed, and to add to Townsend's dangers the place was in absolute darkness and snow was falling at the time.</p>	<p>There is about 4½ hours shunting nightly at this place, but there are no fixed lamps provided in the shunting yard, and it is desirable that steps should be taken for the sidings to be well lighted, and in addition some system of drainage might be adopted by which the water courses could be dispensed with and the ballast made level in the paths it is necessary for the men to take during shunting operations. -</p> <p>J. J. H.</p>
	<p>Date of Accident—5th March, 1902. Place at which Accident happened—Wickford. Name of Person injured—R. J. Harvey. Age of Person injured—17. Capacity in which employed—Engine cleaner. Number of booked working hours per diem—12. How long on duty at time of Accident—1½ hours. Nature of Injury—Head cut and left leg bruised.</p> <p>Description of Accident—Harvey was engaged in unloading coal from one of two waggons then standing alongside the coaling bank. At about 9.15 p.m., whilst attempting to walk from the wagon towards the back of the coal bank for the purpose of getting a shovel, a piece of coal on which he had stepped slipped from under his foot, with the result that he fell from the coal bank into an engine pit.</p>	<p>Although there are three engines stationed at Wickford, there is not only no engine shed but there is only one small oil lamp provided for the lighting of the locomotive yard—including the coaling bank and turntable—and from the evidence given at my inquiry this lamp, which is placed at the back of the coaling bank, has not been lighted more than once during the last 12 months. On the night of this mishap, except for the light from two small hand torch lamps (necessary for engine cleaning purposes), the yard was in darkness, which, in my opinion, was the primary cause of the accident.</p>	<p>For future safety I recommend that the Company should at once consider the advisability of fixing some good lamps at the coaling bank and other parts of the yard.</p> <p>A. F.</p>
GREAT NORTHERN ...	<p>Date of Accident—18th January, 1902. Place at which Accident happened—Colwick. Name of Person injured—Horace Murfitt. Age of Person injured—23. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—6½ hours. Nature of Injury—Left leg injured. Off duty 1 week.</p> <p>Description of Accident—On the night in question it was Murfitt's duty to see if the sidings numbered from 7 to 14 were clear for a light engine to cross from the engine line to the yard. While hurrying across the yard for this purpose, in a dense fog, he caught his foot in the point rod working No. 13 siding points and fell, with the result stated above.</p>	<p>The point rod in question is protected by side timbers for a distance of about 3½ feet from the running line, but from thence to the lever, for a distance of about 1 foot, it stands about 4 inches above the ballast, and forms an obstruction.</p> <p>The mishap was chiefly due to the point rod being exposed, and to the dense fog prevailing which prevented Murfitt seeing the rod.</p>	<p>For future safety I recommend that the point rod in question, and the others similarly fixed in this busy shunting yard, be cranked to the ballast and protected all the way from the point levers to the running lines with side timbers.</p> <p>J. J. H.</p>

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN— cont.	<p>Date of Accident—30th January, 1902. Place at which Accident happened—Birkenshaw. Name of Persons injured—Henry Bye and Frederick Bye. Ages of Persons injured—76 and 72. Capacity in which employed—Labourers. Number of booked working hours per diem—10, with 1½ hours off for meals. How long on duty at time of Accident—8½ hours. Nature of Injury—Henry Bye had his left foot and Frederick Bye both feet run over and so injured as to render amputation necessary.</p> <p>Description of Accident—These men were brothers, and were engaged clearing up rubbish in the yard and sidings at Birkenshaw. At about 2.15 p.m., while a goods train was engaged shunting there, eleven waggons were drawn out of what is known as the "New road loading dock siding." When the men saw the siding clear they commenced to remove a quantity of rubbish which was lying between the outside rail of the siding and the loading dock. While so engaged three of the eleven waggons which had been drawn out were shunted back again into the siding, with the result that both men were knocked down by the waggons and injured as stated above.</p> <p>Frederick Bye was discharged from the Bradford Infirmary on April 5th and died from pneumonia on April 22nd, and Henry Bye is still off duty from the effects of his accident.</p>	<p>The evidence is somewhat conflicting as to what precaution, if any, was taken by the two men who were injured before they went and stood in the four-foot way of the siding to remove the rubbish. Henry Bye states that he asked his brother (Frederick), who was in charge, if he had said anything to the shunter, when he replied: "I called to them coming down, saying what we were about to do." But when Shunter Scott visited Frederick Bye at his home shortly after his discharge from the infirmary he said it was not him he spoke to, nor could he say who it was. Scott and goods guard William Newling were the only persons working with the engine, and they both state that neither of the men informed them what they were about to do, but had they done so they could and would have shunted the three waggons into another siding. I have not been able to obtain the evidence of Frederick Bye (now deceased), but I am of the opinion that the mishap was chiefly due to his neglecting to take proper precaution for his own and his brother's safety. Frederick Bye's age was 72, and Henry Bye is 76 years of age. With respect to the former I am informed that he was a sharp, active man, and physically fit to perform the light duties he had to fulfil, and from my own observations Henry Bye was also quite capable.</p> <p>J. J. H.</p>	
	<p>Date of Accident—4th February, 1902. Place at which Accident happened—Colwick. Name of person injured—James Whittaker. Age of Person injured—42. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—5 hours. Nature of injury—Right foot injured. Off duty 16 days.</p> <p>Description of Accident—At 11.0 a.m. on the date in question Whittaker was working with engine No. 919, which was at the south end of the yard and was taken into No. 25 siding and attached to some waggons for shunting purposes. While these vehicles were being drawn out of that siding he rode upon the step of the engine, and on reaching the fouling point he was caught between the engine and the first of a number of waggons which were being pushed back from the opposite end of the yard along No. 29 siding by another engine in charge of goods guard George Hull, with the result stated above.</p>	<p>Although the evidence is somewhat conflicting as to the distance the vehicles then standing in No. 29 siding were clear when engine No. 919 was taken into No. 25 siding at the south end of the yard, if goods guard George Hull had, as he ought to have done, walked back towards the south end of the yard to see how far his engine in No. 29 siding could push the vehicles standing in that siding in safety the mishap would not have occurred, and for having neglected to do so he must be held responsible for the accident.</p> <p>J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN— <i>cont.</i>	<p>Date of Accident—26th February, 1902. Place at which Accident happened — Farringdon Street Goods Station. Name of Person injured—B. Smith. Age of Person injured — 55. Capacity in which employed — Extra goods porter. Number of booked working hours per diem—Uncertain. How long on duty at time of Accident—6 hours. Nature of injury —Right arm fractured.</p> <p>Description of Accident—At about 11.20 p.m. Smith was engaged in tying a sheet over one of three waggons which were standing a few feet apart on the departure line, and whilst he was so engaged, the waggons were suddenly moved, with the result that his right arm was crushed between the buffers.</p>	<p>In this case, owing to the evidence being so conflicting, it was absolutely impossible to trace how or by whom the waggons were moved. No warning was given that the movement was about to be made, and it was to this cause the mishap was due.</p> <p>A. F.</p>	
	<p>Date of Accident—27th February, 1902. Place at which Accident happened —Sandy. Name of Person killed —John Wm. Minns. Age of Person killed—35. Capacity in which employed—Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—4½ hours.</p> <p>Description of Accident—Although classed as a horse shunter, Minns was usually employed for about four hours daily as horse shunter, drayman, and engine shunter respectively. On the morning in question a down goods train, which arrived about 11.15 a.m., was set back into the up exchange sidings for the purpose of attaching ten empty and one loaded waggons. After the train had cleared the main lines the guard, J. Hills, learning the engine was likely to be employed for about three hours for general shunting purposes, decided to take some food, during which time it was agreed that Minns would go on with the work alone. The loaded waggon was between the empties, and to get the latter together it was necessary to shunt the former back into the "long" exchange siding. Minns, standing wide of the siding, gave the set back signal to the engine driver and then apparently he ran to the waggons and detached the one referred to. Losing sight of Minns, and thinking that the waggon was sufficiently clear in the siding, the engine driver, T. Jarvis, brought the engine and waggons attached to it to a stand, after which the fireman, A. Clarke, found Minns lying across one of the rails having been run over. He died shortly afterwards.</p>	<p>There is no evidence to show how this mishap occurred. It is possible that when attempting to uncouple the waggons with his coupling pole he put his whole weight on the pole, and the sudden release of the coupling caused him to fall, or that after having uncoupled the first waggon he tried to get in the next, for the purpose of signalling to the driver, whom, owing to the formation of the siding, he would be unable to see from the side of the waggon, and whilst doing so he slipped from it in front of the waggon.</p> <p>In any case, although it is much to be regretted that the guard left Minns to do the work alone, I am of opinion that the accident was due to misadventure.</p>	<p>A general foreman is appointed at this station, but from the evidence given at my inquiry it appears that whatever shunting may be going on in the goods yard he is expected to be at the passenger station to meet and attend to all passenger trains, and so is seldom superintending or assisting with the shunting. Seeing that in addition to the porters the station master is always in attendance at such times, I suggest that as far as possible the foreman should be in charge of the yard shunting. Had he been attending to the shunting in the goods yard on the morning in question this accident would probably not have happened.</p> <p>A. F.</p>
	<p>Date of Accident—15th March, 1902. Place at which Accident happened —Bounds Green (Wood Green). Name of Person injured—William James Jackson. Age of Person injured—33. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of accident—7½ hours. Nature of Injury—Left leg sprained.</p> <p>Description of Accident—Many of the local down passenger trains ter-</p>	<p>The guard, J. Nicholds, necessarily rode in his van, but in front of that there were four other vehicles. As the carriages were being propelled into the sidings Nicholds could not get a clear view of things ahead, owing to the four vehicles in front, and seeing another train was then leaving the sidings he concluded that that was the one respecting</p>	<p>In consequence of this accident the Company have now received instructions that in future not more than two vehicles are to be propelled into the sidings in front of the guard's van, but to my mind, owing to the formation of the sidings, even those may prevent the guard getting a clear view of the sidings in which his train is running, and I</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN —cont.	<p>minate at Wood Green, but for "running round" purposes the carriages are taken forward to Bounds Green signal cabin, which is on the Enfield branch line, and situated between Wood Green and Bowes Park. From Bounds Green the carriages are propelled into one of these sidings, and the engines are "run round" through one of the adjoining sidings. The sidings are about 300 yards in length. They are on a very sharp curve, besides which there is a gradient falling from the entrance of 1 in 113. As booked for return up working, the trains leave the sidings at Wood Green No. 2 signal cabin. On the morning in question an empty carriage train arrived at Bounds Green at 8.52, and after the vehicles had been propelled into the No. 3 siding the engine for "running round" purposes was taken through the No. 1 siding. At 9 a.m. a second train arrived, and after the signalman had "warned" the guard and driver that the siding was occupied, by calling, as usual, "There is one in," the train was set back into the same No. 1 siding. The first engine had been delayed at the No. 1 outlet signal, and failing to notice the position the guard in charge of the second train allowed the leading vehicle to collide with the standing engine, with the result that the fireman, W. J. Jackson, was thrown backwards on the footplate and injured as stated.</p>	<p>which he had been "warned."</p> <p>Nicholds must, of course, be held partly responsible for the mishap, but at the same time, owing to the vagueness of the warning he received, the formation of the sidings, and the fact that there were the four vehicles in front of the one in which he was necessarily riding, I am of opinion that, so far as he is concerned, the accident was due rather to misjudgment than carelessness.</p> <p>I am inclined to think that had the driver of the light engine been keeping a proper look out he might have seen the approaching vehicles and probably prevented the mishap.</p>	<p>recommend that for future safety, as far as possible, the practice of propelling vehicles in front of the van should be avoided, and when absolutely necessary an assistant guard should be appointed to ride in or walk in front of the leading vehicle for looking-out purposes. Besides which, when "warning" the guards or drivers the signalman at Bounds Green should state whether the sidings to which he refers is occupied by an engine or train.</p> <p>A. F.</p>
GREAT WESTERN ...	<p>Date of Accident—4th February, 1902.</p> <p>Place at which Accident happened—High Wycombe. Name of Person injured—David Day. Age of Person injured—28. Capacity in which employed—Brakesman. Number of booked working hours per diem—11. How long on duty at time of Accident—10 hours. Nature of injury—Testicles injured.</p> <p>Description of Accident—Day was working with a goods train from Taplow to Oxford. On arriving at High Wycombe at about 2.30 a.m. there were three waggons to attach and seven to detach. After the three waggons had been taken from the shunting neck and shunted back on to the brake van, which was standing on the main line, the engine and ten waggons were again taken back to the goods yard, and the seven waggons for detaching were propelled into the shunting neck; but after Day had uncoupled between the third and fourth waggons, and whilst just in the act of withdrawing his coupling pole and at the same time showing a stop signal from his hand-lamp to the engine driver, he collided with a hand point lever, with the result stated above.</p> <p>Date of Accident—8th March, 1902.</p> <p>Place at which Accident happened—Shut End Siding (Kingswinford Branch). Name of Person killed—Joseph Parsons. Age of Person killed—23. Capacity in which</p>	<p>The lever against which Day came in contact is situated in the 8-foot space between the shunting neck and a parallel siding. He was well acquainted with the goods yard and also the position of the lever, but having his full attention given to the uncoupling of the waggons and the signalling to the engine driver, he appears to have momentarily forgotten the lever.</p> <p>There are no fixed lamps provided at the shunting neck, and consequently at the time of the mishap the yard was in darkness, but in this case I am of opinion that the primary cause of the accident was rather owing to the position of the hand point lever than to the want of light.</p> <p>When the engine was drawing the waggon to the bank the engine driver, W. Stent, was looking over the side of the engine watching for hand signals</p>	<p>I understand that it is intended to make great alterations at this station, but it must necessarily be many months before these can be completed, and seeing that there are six trains booked to stop during the night to attach and detach waggons, for the safety of those engaged in shunting operations I suggest that a good lamp should be provided near to the shunting neck, and that if possible the hand point lever referred to should be placed on the west or off side of the back siding.</p> <p>A. F.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>Date of Accident—13th January, 1902. Place at which Accident happened—Low Moor. Name of Person injured—Isaac S. Newton. Age of Person injured—31. Capacity in which employed—Fireman. Number of booked working hours per diem—12½, with 1 hour off for meals. How long on duty at time of Accident—6 hours. Nature of Injury—Right knee and right shoulder injured. Off duty 3 days.</p> <p>Description of Accident—On the night in question Newton booked on duty with engine driver J. Houldsworth at 5.30 p.m., for the purpose of taking engines from the locomotive yard to the coal stage, and after they were coaled placing them in position in the engine shed. At 11.30 p.m., engines Nos. 382 and 685 having been coaled, it was arranged between Houldsworth and Newton that the latter should take No. 382 into No. 12 shed road, and that Houldsworth should take No. 685 into No. 5 shed road. When the engine Newton was in charge of was approaching the points leading to the shed, which can be set for either Nos. 12 or 13 roads, he observed that they were set for the latter road, and for the purpose of reversing them he left the engine while it was in motion and ran forward, intending to regain the engine after setting the points in proper position, but before reaching them he fell over the lever of another pair of points fixed 12 yards eastwards, and was so injured by his fall that he was not able to regain the footplate of engine No. 382, with the result that it continued to run forward until it collided with some vehicles standing in No. 13 road, knocking one of them off the rails and damaging another one.</p>	<p>shows bad judgment. I am of opinion that in this case shunter J. W. Williams is chiefly to blame for the accident; at the same time, from his own evidence, I am afraid that under the circumstances guard F. D. Bowden shunted the waggons into the siding at too great a speed, for which he is also to blame.</p> <p>A. F.</p> <p>Both Newton and Houldsworth admitted that instructions had been issued forbidding them to move engines from the coal stage to the engine shed when there was only one man with the engine, as in this case, and consequently both men are to blame for the mishap.</p>	<p>From the evidence given at my inquiry it appears that the practice of disregarding the instructions in the same manner as Newton and Houldsworth did is far too general, and it is to be hoped that the Company will take steps to strictly enforce compliance with their instructions before a more serious accident occurs.</p> <p>J. J. H.</p>
	<p>Date of Accident—15th January, 1902. Place at which Accident happened—Bury. Name of Person injured—William O'Donnell. Age of Person injured—21. Capacity in which employed—Carter, employed by Mr. Cox Bury. Nature of Injury—Hips bruised.</p> <p>Description of Accident—In this case, when O'Donnell and goods porter William F. Shoreman were unloading some tripes from a waggon standing in No. 1 siding on to a dray, eighteen vehicles were propelled by an engine into the siding, and colliding with two</p>	<p>While the eighteen waggons were being propelled into No. 1 siding goods guard James Rostron, who was in charge of the operation, saw O'Donnell's dray against the waggon that he and Shoreman were unloading, and also saw them at work, but beyond calling to them "look-out" from a distance of fully 65 yards he took no steps either to stop his driver or warn the men, in accordance with Rule</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>LANCASHIRE AND YORKSHIRE—cont.</b>	<p>covered vans (i.e., box waggons) they were forced forward against the waggon the men were unloading, with the result that O'Donnell was thrown out of the waggon into the 4-foot way, receiving the injuries stated above; fortunately Shoreman was only knocked down on the floor of the waggon, escaping injury.</p> <p>Date of Accident—22nd January, 1902. Place at which Accident happened—Southport. Name of Person injured—Frederick J. Greenwood. Age of Person injured—38. Capacity in which employed—Coalman. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—6½ hours. Nature of Injury—Left hip and right thigh injured. Off duty 9 days.</p> <p>Description of Accident—In this case, while a waggon was being tow-roped on to the weighing machine of the coal stage, Greenwood, thinking it would run too far, attempted to stop it by placing his hands on the side of the vehicle and pulling it back. While doing so he was caught between the pillar supporting the water tank and the side of the vehicle, with the result stated above.</p> <p>Date of Accident—10th February, 1902. Place at which Accident happened—Cheetham Hill, Manchester. Name of Person injured—John Shaw. Age of Person injured—35. Capacity in which employed—Engine driver. Number of booked working hours per diem—8½. How long on duty at time of Accident—1½ hours. Nature of injury—Ribs fractured.</p> <p>Description of Accident—Shaw left Newton Heath engine sheds for Victoria Station for the purpose of taking charge of an engine with which he was to work a passenger train from Victoria to Bury. On reaching Victoria he was informed by a station inspector that the engine he required had worked some empty carriages to the Cheetham Hill carriage sidings, and although it was then very foggy Shaw walked along the line to that point. On arriving at the carriage sidings he was told that the engine had been taken to the Newton Heath sheds for locomotive purposes, and Shaw then at once left for Victoria. Immediately he had started on the return journey, and whilst walking foul of the up main line, he was struck by a light engine, which, owing to the noise of a passenger down train, he had failed to hear approaching in the rear, with the result stated.</p>	<p>112 (a), and the special instructions bearing on the subject, a copy of which he had been supplied with; Rostrov is therefore solely to blame for the mishap.</p> <p>J. J. H.</p> <p>It was no part of Greenwood's duty to attempt to stop the vehicle. The mishap may be attributed to his excess of zeal. At the same time, the system of tow-roping at this place seems to be unsatisfactory, as while it is being performed a fireman generally acts as driver, and he is alone on the engine, as the person acting as fireman, who is generally an engine cleaner, has both to attend to the tow-rope and take the sprags out of the wheels of the vehicles. Further, the system of signalling for the engine driver to stop, which is done by the coalman calling out, is not satisfactory, because unless the latter calls out very loudly his call is not heard by the driver, consequently the vehicles are drawn too far, as in this case.</p> <p>In this case there was no necessity for Shaw to have left Victoria Station, because if he had remained there the engine would have been taken back for his use, or another would have been provided, but even had he been required to go to Cheetham Hill Sidings there was no reason why he should have walked along the line, as he might easily have reached that point through neighbouring streets, and seeing that it was foggy at the time it is surprising that he should have chosen such a dangerous route. I am of opinion that the accident was due to Shaw's own want of caution.</p>	<p>There does not appear to be any real necessity for tow-roping, and it is so dangerous an operation that it should either be forbidden or only done under exceptional circumstances, and then only by properly qualified men, and when two men are upon the engine.</p> <p>J. J. H.</p> <p>The traffic on the section of the line between Victoria and Cheetham Hill Sidings is very heavy, and for future safety I recommend the Company should issue stringent instructions against enginemmen or others unnecessarily walking over it.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>Date of Accident—10th February, 1902. Place at which Accident happened—Bury, Knowsley Street. Name of Person injured—Joseph Pounder. Age of Person injured—28. Capacity in which employed—Fireman. Number of booked working hours per diem—10½. How long on duty at time of Accident—8½ hours. Nature of Injury—Contusion of left thigh and left shoulder.</p> <p>Description of Accident—Pounder had worked with the 11.57 a.m. passenger train from Manchester to Bury. On arriving at the latter station it was necessary for the train to be taken over the west cross-over points, through which the carriages had to be propelled to the up platform ready to form the return train.</p> <p>Whilst the train was being set back through the cross-over road, owing to there being some snow on the rails, to prevent the engine wheels slipping it was necessary to apply sand. The sand did not act to the lever on the footplate, and unknown to the engine driver Pounder got on the footstep, and whilst striking the sand pipe with a hammer for the purpose of clearing it he collided with the cross-over disc signal, and was knocked from his position.</p>	<p>There was a good supply of sand in the sand box, but it is supposed that owing to the snow and damp the pipe had become blocked up. This, however, did not justify Pounder exposing himself to danger contrary to the Company's rules, and he must be held alone to blame for the mishap.</p> <p>A. F.</p>	
	<p>Date of Accident—13th February, 1902. Place at which Accident happened—Radcliffe Bridge. Name of Person killed—Thomas Ward. Age of Person killed—25. Capacity in which employed—Relief fogman. Number of booked working hours per diem—10½. How long on duty at time of Accident—1 hour and 20 minutes.</p> <p>Description of Accident—Ward was one of several ballast train men stationed at Ramsbottom appointed to act as relief fogman at Radcliffe Bridge. Owing to it having been very foggy the local platelayers had been on duty all night, and in response to a telegram sent in the name of the stationmaster the relief fogmen were sent from Ramsbottom to take their places. On reaching Radcliffe Bridge, without asking for instructions, the relief men went direct to the positions at which they had previously been engaged, but on Ward reaching the station up distant signal he learned that owing to the station signal cabin being closed from 12 p.m. to 4 a.m. the fogmen then on duty did not require relieving, consequently he left that point with the intention of going to the ganger, who was supposed to be at a cabin in the goods yard, for further instructions. Shortly after he left the up distant signal he was found lying between the rails of the down main line having been run over by a passing train. He died shortly afterwards.</p>	<p>When leaving the signal referred to Ward knew that an up goods train was approaching, but owing to the fog he was unable to see a down passenger train which passed immediately after he left. From the position in which he was found there is no doubt that the deceased had been walking along the four-foot way of the down line, and that owing to the noise from the passing up goods train, together with the heavy fog, he failed to hear the passenger train approaching in the opposite direction. Ward acted unwisely in walking in the position mentioned, for which there was no necessity, consequently the mishap was due to want of caution.</p> <p>A. F.</p>	
	<p>Date of Accident—17th February, 1902. Place at which Accident happened—Bloomfield Junction, Blackpool. Name of Person killed</p>	<p>It is difficult to understand why Day should have got so near to the loop lines, and especially why he</p>	



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>—Christopher Day. Age of Person killed—25. Capacity in which employed—Signal fitter's labourer. Number of booked working hours per diem—10½. How long on duty at time of Accident—3½ hours.</p> <p>Description of Accident—For a week previous to the date of the accident Day and several other men had been engaged in rearranging the point and signal connections at Bloomfield Junction, which is situated about 500 yards south of the Blackpool central station. In connection with certain extensive alterations a junction was made between the main and new loop lines at a point about 150 yards south of Bloomfield Junction cabin, and to enable other alterations to be made on the main line on and from the 16th February until the special work was completed all trains going to and from the station were worked through the new connections mentioned. The next morning a blacksmith named J. Newton and Day were engaged in refixing some point rods on the off side of the then disused main line about 60 yards north of the new junction points, and at about 10.38 a.m. Day crossed those lines for the purpose of getting another rod ready for fixing. At that time an incoming train was approaching, and thinking Day might possibly get foul of the loop line the fireman sounded the engine whistle as a warning. The train was then running about 10 miles an hour, and as it got nearer to where Day was standing the driver shouted to him to "Stand back," but instead of stepping clear of the loop line he got foul, and being struck by the engine he received injuries from which he died thirteen days later.</p> <p>Date of Accident—21st February, 1902. Place at which Accident happened—Halifax. Name of Person injured—Gilbert Davenport. Age of Person injured—14. Nature of Injury—Both great toes fractured.</p> <p>Description of Accident—This youth, who is employed by the Halifax Press Company, was sent to the station for the purpose of conveying some parcels of newspapers on a barrow or hand truck. According to his usual practice Davenport, unassisted by any of the station staff, took the barrow from the footbridge to the platform by the hoist, but after disposing of the parcels, and when ascending in the same hoist, he stood with part of his feet over the front of the cage with the result that as the cage, reached the first cross timber (over the gateway) in the frame through which the hoist is worked his feet were crushed and injured as stated above.</p>	<p>should have remained there when he saw the passenger train approaching, unless, although he assisted in the diversion of the traffic the day previous, he forgot that the train was running to the loop and stood aside for the moment thinking it was running on the old line. There was certainly no necessity for him to have been near to the running loop line, and in this case undoubtedly the accident was due to want of caution on the part of the deceased.</p> <p>A. F.</p> <p>There are five different hoists provided at this station for the purpose of conveying parcels and luggage to and from the platforms, and near to each hoist at the top and bottom there are notices exhibited forbidding unauthorised persons using them, but from the evidence given at my inquiry, and from my own observations, the public have used the hoists with such freedom that they now appear to think they are not only expected to use them, but that they have a right to do so. Undoubtedly the youth Davenport is to blame for acting contrary to the notice posted, but in my opinion the station officials are chiefly to blame for allowing such a loose and dangerous practice.</p> <p>A. F.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>Date of Accident—4th March, 1902. Place at which Accident happened—Wakefield. Name of Person injured—Thomas Richardson. Age of Person injured—20. Nature of Injury—Left leg crushed.</p> <p>Description of Accident—Richardson is employed by Mr. Thomas Young, railway contractor, of Wakefield, and for six weeks previous to the date of accident he, with sixteen other men, had been engaged in relaying certain lines at Wakefield. On the morning in question Richardson had been assisting to replace a crossing in the up loop line, about 30 yards west of the station platform. At about 12.30 p.m., after that had been finished, the men all left the crossing intending to go to a cabin to take their mid-day meal. Instead of at once crossing the different sidings adjoining, Richardson ran along the four-foot way of the same loop line for the purpose of getting his coat which was lying near to the ramp of the platform, but whilst doing so, and just when he had reached the platform, failing to notice that eight empty coal waggons attached to an engine—which, owing to the displacement of the crossing, had been detained at the up loop platform—were then being set in motion for the purpose of being propelled to the exchange sidings, he was knocked down and his left leg was run over.</p>	<p>The engine and eight empty coal waggons referred to were en route from the locomotive sheds to the exchange sidings, but for the reasons stated they were detained for about 20 minutes at the up loop platform. As soon as the work had been finished or made good for the engine and waggons to pass over the crossing the flagman so informed the signalman, who, of course, lowered the necessary fixed signal, and the driver, knowing the line was then clear, at once set the engine and waggons in motion. Fortunately, with the assistance of another workman and the prompt attention of the driver who, noticing something was wrong, at once brought the engine and waggons to a stand, only one empty waggon passed over Richardson's leg.</p> <p>The accident was undoubtedly due to the injured man's own want of caution.</p> <p style="text-align: right;">A. F.</p>	
	<p>Date of Accident—5th March, 1902. Place at which Accident happened—Agecroft Locomotive Yard. Name of Person injured—Richard O. Antrobus. Age of Person injured—18½. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—12, with 1½ hours for meals. How long on duty at time of Accident—4½ hours. Nature of Injury—Three fingers and thumb of left hand injured.</p> <p>Description of Accident.—Antrobus was acting as assistant to shedman, i.e., engine-driver H. Laird. They were engaged shunting in the locomotive yard, and while doing so they left one waggon standing near the foot of the incline leading to the coal stage, while the engine was taken into a siding for five other waggons, which were pushed steadily back against the standing waggons, and as they were being closed up Antrobus attempted to couple them together with his coupling pole, but failed. The impact, however, caused the standing waggon to be moved forward up the incline about a yard, but directly afterwards it ran slowly back against the five waggons which were then at rest, and while it was doing so Antrobus made another attempt to couple the vehicles together with his coupling pole, when it slipped off the end link of the waggon coupling, causing his left hand to suddenly fly upwards and be caught between the buffers of the vehicles when they joined, with the result stated above.</p>	<p>The mishap was purely accidental. Antrobus had regularly been engaged with the same work for about three months prior to the accident, and during that time had daily used the coupling pole satisfactorily.</p> <p>The shunting is not heavy at this place.</p> <p style="text-align: right;">J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>Date of Accident—6th March, 1902. Place at which Accident happened—Dewsbury. Name of Person injured—Radcliffe Dodd. Age of Person injured—27. Capacity in which employed—Engine cleaner, acting as fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—50 minutes. Nature of Injury—Left hand out.</p> <p>Description of Accident—On the date in question Dodd with his driver, F. Stocks, booked on duty at Mirfield at 4.30 a.m. to work the 5.30 a.m. passenger train from Dewsbury to Brighouse. The engine was taken light from Mirfield to Dewsbury. On arrival there, while it was being set back to the train, it was necessary for Dodd to leave the footplate and walk in front of his engine to see if two pairs of points some distance apart were properly set, and while doing so, during a dense fog, he stepped too near the edge of the turntable pit and fell in, his left hand falling on a piece of a broken bottle, with the result stated above.</p>	<p>This mishap appears to have been accidental; at the same time Dodd had only a gauge glass lamp to light the path it was necessary for him to take, and if engine No. 31, with which he was working, had been supplied with a proper hand lamp for his use he might have seen the turntable pit in time to have averted the mishap.</p>	<p>From the evidence it is clear that a number of engines on this line are not provided with hand-lamps, and even in the case of those that are so provided the lamps are not fitted with red or green glasses, and it is desirable that every engine driver, working trains on the main line, should be supplied with a hand lamp fitted with red and green glasses for use in cases of emergency.</p> <p>J. J. H.</p>
	<p>Date of Accident—8th March, 1902. Place at which Accident happened—Copley. Name of Person injured—Eli Midgeley. Age of Person injured—81. Capacity in which employed—Fireman. Number of booked working hours per diem—11. How long on duty at time of Accident—10½ hours. Nature of Injury—Right side injured.</p> <p>Description of Accident.—Midgeley was working with the 2.30 p.m. passenger train from Liverpool to Low Moor. At 4.15 p.m., when approaching Copley (at which station the train was not booked to stop) all the signals were at danger, and engine-driver W. Wilkinson brought the train under control prepared to stop at the home signal, but when his engine was within a few yards of it it was lowered and he drew steadily forward towards the advance starting signal. While he was doing so, at a speed of about four miles an hour, Midgeley stepped over the partition plate fixed at the footplate end of the tender for the purpose of taking the fire-irons off the holdfast fixed on the side of the tender, and after he had done so, when stepping back over the partition plate to reach the footplate, his foot slipped and he fell with his right side on the step fixed in front of the tender, so injuring it as to cause him to be off duty 6 weeks.</p>	<p>The mishap appears to have been accidental.</p> <p>J. J. H.</p>	
LONDON AND NORTH-WESTERN.	<p>Date of Accident—14th January, 1902. Place at which Accident happened—Heckmondwike. Name of Person injured—George McVay. Age of Person injured—37. Capacity in which employed—Brakesman. Number of booked working hours per diem—10½. How long on duty at time of Accident—8½ hours. Nature of Injury—Left hand severely injured.</p>	<p>At the place where this accident happened the lines are on a curve, and there being an embankment at the east side of the up main line, it was necessary for McVay to get out of his brake-van at the west, i.e., 6-foot side, between the up and down main lines, both to</p>	<p>For future safety I recommend that small ashes be spread over the slag ballast with a view to prevent the men from slipping and falling while carrying out Rule 185 (a).</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN— <i>cont.</i>	<p>Description of Accident—In this case McVay was working with the 5.25 p.m. up goods train from Leeds to Ord-all Lane, Manchester. On arrival at Heckmondwike at 7.5 p.m. it was necessary for the train to be shunted into the goods yard and for McVay to get out of his brake-van to see if the points were in proper position, as directed in Rule 185 (a), before signalling his driver back. While the train was being steadily set back he attempted to jump upon the footstep of his brake-van as it was passing, when his foot slipped on a heap of loose ballast and he fell with his left hand on the rail, the wheels of the brake van passing over it, with the result stated above.</p>	<p>see the points and for signalling purposes. To add to his dangers the inside rail of the down main line is 5 inches higher than the inside rail of the up main line, so that even when the ballast is spread it lays in a sloping direction towards the rail on which he fell. The mishap was chiefly due to the slag ballast having been allowed to lie in heaps instead of being evenly spread.</p>	
	<p>Date of Accident—29th January, 1902. Place at which Accident happened—Curzon Street, Birmingham. Name of Person injured—Michael Burke. Age of Person injured—56. Capacity in which employed—Goods Porter. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—1½ hours. Nature of Injury—Head and left shoulder injured.</p> <p>Description of Accident—While Burke was engaged wheeling a barrow containing sawdust into a waggon standing in the cattle dock siding, some other waggons were shunted against it, causing him to be knocked down against the side of the waggon door, with the result stated above.</p>	<p>No warning was given to Burke by Henry Rock, brakesman, who was in charge of the shunt, and as he was aware that the cattle dock siding is used for loading purposes he is to blame for neglecting to carry out Rule No. 112 (a), which neglect was the chief cause of the accident.</p>	<p>In order to prevent further accidents of this nature it is desirable that the Company should take steps to strictly enforce compliance with Rule 112 (a) by all concerned in future.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—31st January, 1902. Place at which Accident happened—Preston locomotive yard. Name of Person injured—Emmanuel Hodgkinson. Age of Person injured—20. Capacity in which employed—Engine cleaner. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—4½ hours. Nature of Injury—Pelvis fractured.</p> <p>Description of Accident—On the night in question Hodgkinson was engaged assisting in shunting the empty coal waggons from the coal stage siding and placing the loaded waggons in position in that siding. For this purpose he coupled engine No. 3127 to two loaded waggons standing in No. 15 shed road, after which he got upon the footstep of the engine to ride over the points leading to the coal stage siding. While the engine was being drawn forward he was caught between the side of it and a waggon standing in what is known as Hinckman's siding (adjoining No. 15 road), with the result that he was so injured that he was still off duty at the time the inquiry was held.</p>	<p>The engine turntable at this place is fixed so near to the west side of Hinckman's siding that if the vehicles are left standing in that siding opposite to the turntable the engines cannot be turned, consequently they are drawn forward and left standing dangerously near to the exit from No. 15 shed road, as in this case.</p> <p>This mishap was due to the faulty system of leaving the waggons in Hinckman's siding too near the fouling point of No. 15 shed road, contrary to Rule 184 (c).</p>	<p>For future safety it is desirable that steps should be taken for Rule 184 (c) to be strictly carried out at all times.</p> <p style="text-align: right;">J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH WESTERN— <i>cont.</i>	<p>Date of Accident—1st February, 1902. Place at which Accident happened—Soho. Name of Person injured—Thomas H. Stanford. Age of Person injured—25. Capacity in which employed—Shunter. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—8½ hours. Nature of Injury—Back strained. Off duty 2 weeks.</p> <p>Description of Accident—At 1.45 on the morning in question Stanford was engaged in shunting operations in the "Coal Wharf" sidings, and while running alongside some waggons in motion, for uncoupling purposes, he caught his foot in a stretcher bar and stumbled, with the result stated above.</p>	<p>In this case, owing to there being a fence fixed at the east side of the shunting neck only 3 feet from the running line, it was necessary for Stanford to perform the uncoupling operations at the opposite side between the shunting neck and up main line, and while doing so his foot came in contact with a stretcher bar.</p> <p>Although the mishap appears to have been chiefly due to misadventure, if the sidings had been well lighted, instead of in absolute darkness, Stanford might have seen the stretcher bar with which his foot came in contact in time to have prevented the mishap.</p>	<p>From 1 to 1½ hours' shunting takes place in these sidings nightly, and for the future safety of the men conducting it the Company should provide sufficient light to enable them to see to do their work.</p> <p>J. J. H.</p>
	<p>Date of Accident—14th February, 1902. Place at which Accident happened—Rugby. Name of Person injured—William Pittam. Age of Person injured—21. Capacity in which employed—Labourer (acting as Coalman). Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—4½ hours. Nature of Injury—Forefinger of left hand injured. Off duty 2½ days.</p> <p>Description of Accident—At 11 a.m. on the day in question two waggons containing coal, which were standing on the coal stage incline, were required about 30 yards further northwards for unloading purposes. To get them there one end of a tail-chain was attached to the drawbar-hook of an engine, which travelled along the low level line, and the other end of the tail chain was attached to the axle-guard of the rear waggon. After the vehicles had been drawn into position, and when they were at rest, Pittam, while in the act of releasing the tail-chain, allowed it to fall on his finger, with the result stated above.</p>	<p>The mishap appears to have been accidental. At the same time Pittam was inexperienced with the work at which he was engaged. Further, he had not been supplied with a copy of the Company's rules, and had to attend to both ends of the tail-chain, as there was only one man on the engine while the operation of tail-chaining was being performed.</p>	<p>There does not seem to be any real necessity for tail-chaining at this place, and it should either be forbidden or arrangements made for it being done by properly qualified men, and only when two men are upon the engine.</p> <p>J. J. H.</p>
	<p>Date of Accident—20th February, 1902. Place at which Accident happened—Bridgewater Yard, Ord-sall Lane. Name of Person injured—Joseph Corfield. Age of Person injured—33. Capacity in which employed—Brakesman. Number of booked working hours per diem—10. How long on duty at time of Accident—3½ hours. Nature of Injury—Right knee injured.</p> <p>Description of Accident.—In this case Corfield was working with the 10.43 p.m. coal train from Ellenbrook to Bridgewater sidings. On arrival there he ran forward to uncouple his engine, and while doing so he came in contact with a piece of wood resting on a heap of coal, with the result stated above.</p>	<p>The mishap was chiefly due to Corfield's own want of care.</p> <p>J. J. H.</p>	
	<p>Date of Accident—1st March 1902. Place at which Accident happened—Chorley. Name of Person injured—George Edwardson. Age of Person injured—49. Capacity</p>	<p>The abutment of the bridge in question is fixed 4 feet 6 inches from the running line of the shunting neck. At the time of the mishap,</p>	<p>Fully four hours' shunting takes place nightly in these sidings, and for future safety it is desirable that some qualified</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN— <i>cont.</i>	<p>in which employed—Brakesman. Number of booked working hours per diem—10. How long on duty at time of Accident—3½ hours. Nature of injury—Right arm injured.</p> <p>Description of Accident—Edwardson was working with the 3.40 p.m. goods train from Blackburn to Round House, and during shunting operations at Chorley at 7 p.m., while attempting to uncouple some waggons in motion with his coupling pole it caught the draw bar of one of the waggons, and after rebounding became fast against the upright at the end of the vehicle, and before he could release it the other end came in contact with the abutment of a bridge, with the result that Edwardson was injured, as stated above.</p>	<p>Edwardson, owing to the lines being on a curve, and an overbridge obstructing the view, was unable to see his driver for signalling purposes, and as he was working alone he had to give the necessary signals by different codes of whistling.</p> <p>In this case, after giving the set back whistle, he was anxious to uncouple as quickly as possible, because after doing so, as the line is on a falling gradient of 1 in 60 towards the sidings, it was necessary for him to attend to the brakes of the vehicles to prevent them coming into violent contact with other vehicles standing in the sidings. The accident appears to have been chiefly due to Edwardson having to perform the whole of the shunting operations alone.</p>	<p>person should be appointed to assist the brakemen with the necessary shunting operations.</p> <p>J. J. H.</p>
	<p>Date of Accident—1st March, 1902. Place at which Accident happened—Longsight. Name of person injured—Harding Hunter. Age of person injured—37. Capacity in which employed—Engine Turner. Number of booked working hours per diem—12, with one hour off for meals. How long on duty at time of Accident—8 hours. Nature of injury—Right hand injured.</p> <p>Description of Accident—The engine-men working trains take their engines into the locomotive yard, and after placing them in the coal stage road leave them for the engine turners to deal with. The latter then place them in position to coal and afterwards where they are required in the engine shed. In this case Hunter had placed four engines in position to coal, and when about to move tank engine No. 115, after it had been coaled, the coalman could not get the coal tip to rise owing to its being jammed against the tool box, and while Hunter was attempting to push it up with his hand the engine was moved, with the result that his right hand was caught between the cab of the engine and the coal tip, and so injured as to cause him to be off duty 16 days.</p>	<p>The mishap was due to the engines standing in the coal stage road being moved without any warning, but I was unable to ascertain who moved them.</p> <p>J. J. H.</p>	
	<p>Date of Accident—6th March, 1902. Place at which Accident happened—Soho. Name of Person killed—William Joseph Cope. Age of Person killed—32. Capacity in which employed—Goods Porter. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—9 hours 40 minutes.</p> <p>Description of Accident—The goods shed at Soho holds nine waggons. In this case there was a space of about 18 inches between the fifth and sixth waggons. While the deceased and two other goods</p>	<p>The shunter, John Currie, who was responsible for the moving of the wagon, is solely responsible for this accident. He fully admits that he neglected to give the necessary warning as directed in Rule 112 (a), and for his neglect he has been dismissed the service.</p> <p>J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN— <i>cont.</i>	<p>porters were engaged tying down the sheet covering the latter waggon, the waggons were closed up by an engine and Cope was caught between the buffers of the vehicles and killed.</p>		
	<p>Date of Accident—12th March, 1902. Place at which Accident happened—Bolton. Name of Person injured—Frederick Hodgson. Age of Person injured—24. Capacity in which employed—Goods Porter. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—11 hours. Nature of Injury—Right leg bruised.</p> <p>Description of Accident—On arrival of the goods train at Bolton the engines are uncoupled, after which the waggons are allowed to run by gravitation into the different sidings.</p> <p>In this case a waggon was allowed to run into No. 13 siding and come in contact with ten vehicles standing there with such violence as to drive them forward and move the waggon at which Hodgson was engaged, loading empty carboys, about 12 yards, with the result that one of the carboys struck his right leg, so injuring it as to cause him to be off duty for one week.</p>	<p>The mishap appears to have been due to the faulty system by which the men have been permitted to allow the waggons to run down the falling gradient into the different sidings without proper warning being given to the men engaged loading or unloading waggons at rest in the sidings, as directed in Rule 112 (a).</p>	<p>As other accidents have occurred at this station from similar causes, and as it was admitted in evidence that it was not the practice to warn the men engaged loading or unloading goods, in accordance with Rule 112 (a), it is to be hoped that the Company will take steps for this rule to be strictly adhered to in future, so as to prevent other accidents of this nature.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—16th March, 1902. Place at which Accident happened—Kirkless Hall sidings, near Rose Bridge Junction. Name of Person killed—Henry A. Gubbins. Age of Person killed—29. Capacity in which employed—Brakesman, acting as Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—3½ hours.</p> <p>Description of Accident—In this case the deceased was working with a shunting engine on the mineral branch between Springs branch and Monks Hall colliery. On arrival at Kirkless Hall sidings at about 1.15 a.m., he uncoupled nine waggons from the engine and loose shunted them up a rising gradient of 1 in 30 into what is known as the "Hindley Road" siding, and although four sprags were placed in the wheels of the vehicles, after the engine left them they commenced to run down the incline, and for the purpose of bringing them to rest he attempted to place another sprag in one of the waggon wheels, and while doing so he fell over the siding rail underneath the vehicles and was run over and killed.</p>	<p>Although the mishap appears to have been accidental, if the place had been well lighted, instead of in absolute darkness, the deceased might have seen the rail over which he fell in time to have prevented the accident.</p>	<p>It appears from the evidence that three hours' shunting is necessary nightly at this place, and for future safety it is desirable that sufficient light should be provided to enable the men to see to do their work. Further, instructions might with advantage be issued that the waggons must not be uncoupled from the engine on this steep incline until they have been properly secured.</p> <p style="text-align: right;">J. J. H.</p>
	<p>Date of Accident—30th March, 1902. Place at which Accident happened—Wolverhampton. Name of Person injured—James Coad. Age of Person injured—45. Capacity in which employed—Inspector. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Right leg run over.</p>	<p>At the time of the mishap alterations were in progress in connection with lowering the lines five inches, and the water valve cover was that distance above the ballast. The work having been completed, the water valve cover has been lowered</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN—cont.	<p>Description of Accident — In this case Coad was at the up main side of the passenger station when he saw the 10.35 p.m. down goods train from Ettingshall Road to Bushbury shunting, and he crossed over the lines to get the necessary particulars respecting that train, which was being drawn along the down platform line. While doing so, and when walking quickly alongside the train examining the waggon labels, he caught his foot against the cover of a water valve, which is 11½ inches square and is fixed in the six-foot way between the down platform line and the adjoining siding, with the result that he fell with his right leg across the rail, where it was run over by the waggons and so injured that it had to be amputated.</p>	<p>and the ballast brought up to a level with the top of it.</p> <p>The accident appears to have been chiefly due to the water valve being so badly exposed and being left unprotected.</p> <p>J. J. H.</p>	
LONDON AND SOUTH-WESTERN.	<p>Date of Accident—11th January, 1902. Place at which Accident happened—Nine Elms Goods Station. Name of Person injured—Henry Giles. Age of Person injured—56. Capacity in which employed—Goods Shed Labourer. Number of booked working hours per diem—11. How long on duty at time of Accident—5¼ hours. Nature of Injury—Thumb on left hand crushed.</p> <p>Description of Accident—Two waggons were being towed by capstan along the Granary "through line." The first had to be stopped on a turntable for working into a dock siding. It was Giles' duty to scotch the waggon in position on the "table," but when he was placing the "sprag" in front of the leading wheel of the first waggon, which had been detached from and had run a short distance ahead of the second, the latter closed up sharply, causing the outer end of the sprag to rise, with the result that his thumb was crushed as stated. Giles was off duty a month.</p> <p>Date of Accident—18th January, 1902. Place at which Accident happened—Haslemere. Name of Person injured—James Tryhorne. Age of Person injured—55. Capacity in which employed—Goods Guard. Number of booked working hours per diem—8¼. How long on duty at time of Accident—3¼ hours. Nature of Injury—Muscles of right arm strained.</p> <p>Description of Accident—Tryhorne was working in charge of the 2.25 a.m. goods train from Nine Elms to Eastleigh. The train arrived at Haslemere at 5.55 a.m., at which station there were waggons to attach and others to detach. At about 6.5 a.m., when crossing from the up main line for the purpose of giving an electric signal to the signalman from a plunger placed at the north end of the down platform, in stepping over the off side rail of the down line he placed his foot close to the trunking which covers some point rods, and in taking the next step he tripped and fell on the trunking, causing injury to his right arm, which necessitated his being off duty three weeks.</p>	<p>In using a "sprag" for scotching purposes Giles was acting according to the usual practice at Nine Elms, which in my opinion is dangerous and was the cause of this accident.</p> <p>It was dark at the time of the mishap, consequently Tryhorne could not see the position of the trunking over which he stumbled. I am therefore of opinion that the accident was due to misadventure.</p>	<p>For future safety I suggest that for scotching waggons as in this case, which practice is very general in goods sheds, proper hand scotches as used by other Companies should be provided.</p> <p>A. F.</p> <p>The night shunting at the point in question is only very light, so that I do not think the Company could be reasonably asked to provide a fixed light, but at the same time, for future safety, I suggest that instructions should be given that wherever trunking is provided the path should always be kept level with the top of the timbers.</p> <p>A. F.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON BRIGHTON AND SOUTH COAST.	<p>Date of Accident—10th January, 1902. Place at which Accident happened—Hove. Name of Person injured—John Sadler. Age of Person injured—20. Capacity in which employed—Carter, employed by Mr. Jupp, Corn Merchant, Hove. Nature of Injury—Elbow injured. Off duty 5 days.</p> <p>Description of Accident—At 12.20 p.m. on the day in question, while Sadler was engaged removing sacks of corn from a box waggon into his van, the vehicles standing east of the waggon he was engaged in unloading were pushed westward, causing the latter vehicle to be moved, with the result that he fell and injured his elbow.</p>	<p>The responsibility for the mishap rests with goods-guard James Adams, who frankly admits that he neglected to warn Sadler as directed in Rule 112 (a).</p>	<p>For future safety the Company should impress upon all concerned the necessity of strict compliance at all times with the important rule quoted.</p> <p>J. J. H.</p>
MIDLAND ... ..	<p>Date of Accident—5th January, 1902. Place at which Accident happened—Chaddesden sidings, Derby. Name of Person injured—Samuel Wright. Age of Person injured—23. Capacity in which employed—Pointholder. Number of booked working hours per diem—12. How long on duty at time of Accident—11½ hours. Nature of Injury—Left side injured. Off duty 10 days.</p> <p>Description of Accident—At 5.30 on the morning in question Wright, after reversing a pair of points for No. 16 siding, hurried northwards to reverse another pair of points for a shunt of waggons to run into No. 6 siding, and while doing so he caught his foot under the point rod working No. 16 points and fell on to the point lever, with the result stated above.</p>	<p>Extensive alterations were being made at the time of the mishap at Chaddesden sidings. Wright had to work six pairs of what are known as "throw-over" points, the rods of which were exposed from the running line to the point levers which are a short distance from each other. The mishap was chiefly due to the point rods being so badly exposed.</p>	<p>The point levers and rods are only temporarily placed in their present position, as all points in the vicinity will shortly be worked from two signal cabins which are being built as quickly as possible, and I was assured by the Company's representatives that as soon as it is practicable the whole of the point rods will either be protected with side timbers or covered in, and the ballast brought up to a level with the top of the timbers or boxing as the case may be.</p> <p>J. J. H.</p>
	<p>Date of Accident—16th January, 1902. Place at which Accident happened—Toton sidings. Name of Person killed—George Richards. Age of Person killed—47. Capacity in which employed—Gas-fitter's Labourer. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—8½ hours.</p> <p>Description of Accident—On the afternoon in question the deceased and gas-fitter John Stevenson were engaged laying gas-pipes from a lamp fixed between Nos. 1 and 2 up sidings to the main pipe west of the running line leading from the up bank sidings to No. 1 up independent line. While connecting two pipes it was necessary for both men to stand in a stooping position in a hole about 18 inches deep, and for the deceased to stand with his back towards the running line mentioned, upon which a light engine was travelling, with the result that the life guard of the engine caught the deceased's coat and threw him on the rail in front of the leading wheel of the engine, by which he was run over and instantly killed.</p>	<p>Ganger Albert Preston and three men had for about one year been engaged with the alterations which had been made in and about the extensive sidings at Toton, and when it was necessary for Stevenson and the deceased to lay new gas-pipes Preston and his men accompanied them for the purpose of excavating the ballast and filling it in as the pipes were laid. Ganger Preston, in using the discretion given to him in Rule 273 (f), had never appointed a look-out man to look after the safety of any of the men, undertaking to act as look-out man himself. In this case he was within 15 yards of the deceased at the time of the accident, but as he stood between Nos. 1 and 2 up sidings his view of him was hidden by waggons travelling along the former siding. However, if Preston had carried out Rule 273 (a), as he ought to have done, and stood between No. 1 siding and the running line and kept a proper look out he could have seen the light engine</p>	<p>For future safety I am of the opinion that in all such busy yards as Toton a look-out man is necessary to protect the gas-fitters and their labourers while at work on or near to the running lines and sidings, as they cannot perform their duties and at the same time keep a proper look-out for their own safety.</p> <p>They should also be supplied with a copy of the Company's rules in accordance with Rule (47a).</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i>	<p>Date of Accident — 19th January, 1902. Place at which Accident happened — Royston Junction. Name of Person injured—Henry White. Age of Person injured—49. Capacity in which employed—Engine-driver. Number of booked working hours per diem—10. How long on duty at time of Accident—5½ hours. Nature of Injury—Head and left shoulder injured. Off duty 10 days.</p> <p>Description of Accident.—White was working with the 12.20 a.m. up goods train from Leeds to Derby, and when approaching Royston Junction he left the footplate of his engine while it was in motion and went to the top of the tender for the purpose of ascertaining the quantity of water in the tank. After doing so, when in the act of returning to the footplate, his head came in contact with a signal girder (upon which the two up distant signals worked from Royston Junction are fixed), with the result that he was knocked down on to the top of the tank lid and injured as stated above.</p>	<p>approaching in time to have prevented the accident. The responsibility for the mishap rests with Preston for neglecting to carry out the important rule mentioned. Stevenson was in no way to blame. He was not supplied with a copy of the rules, and did not hear the light engine by which the deceased was caught owing to the noise made by an engine and van passing on No. 2 independent line.</p> <p>The Company have issued instructions as follows:—</p> <p>"NOTICE TO DRIVERS AND FIREMEN.</p> <p>"<i>Precautions to be taken to Prevent Injury by coming in contact with Overbridges, &amp;c.</i></p> <p>"I regret to find that "serious accidents have "recently occurred to "Drivers and Firemen "owing to their inad- "vertently standing up "when going on to the "top of the tenders and "coming in contact with "overbridges, &amp;c.</p> <p>"Drivers and Firemen "should avoid going to "the top of the tenders "while their engines are "in motion, unless it is "absolutely necessary, "and when it is neces- "sary they should exer- "cise great care and stoop "sufficiently to clear "the overbridges, signal "girders and other struc- "tures under which the "engines may have to "pass."</p> <p>Rule 24a of the Company's Rule Book warns all servants of the Company not to expose themselves to danger:—</p> <p>"Drivers and Firemen "are hereby requested to "take such precautions "at all times as will "ensure them from risk "of injury."</p> <p>It appears that the train White was working had been stopped at almost every signal cabin between Leeds and Normanton, and shunted twice at the latter station for other trains to pass, consequently more water had been used than usual, and he considered it absolutely necessary to examine his water when approaching Royston Junction, so as to decide whether to stop at Cudworth for a supply or to go forward to Masbro', where he was booked to stop to get it.</p> <p>The under portion of the signal girder in question is 14 feet 1 inch above rail level, and projects slightly over the up goods line, upon which White's engine was running. There is ample space for the signal post and girder to be</p>	<p>I was informed by the Company's representative that water gauges have been fitted at the footplate end of the tender of this engine, and it is to be hoped that no time will be lost in similarly fitting all the tenders, so that the men may see at a glance from the footplate what water the tender contains without incurring the risk of climbing on to the top of the tender for that purpose.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i>	<p>Date of Accident—24th January, 1902. Place at which Accident happened—Kettering. Name of Person injured—John Blake. Age of Person injured—38. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—8 hours 50 minutes. Nature of Injury—Right leg run over and subsequently amputated.</p> <p>Description of Accident—On the night in question shunter F. J. Nicholls was working with a shunting engine in the up goods yard, and at about 6.15 p.m., when nine waggons were attached behind the engine, he attempted to "fly shunt" the rear vehicle into the crane siding. For this purpose the engine was run along the shunting neck, and when the last vehicle was approaching the points leading to the crane siding Nicholls attempted to uncouple it with his coupling pole while running alongside the vehicle when the driver slackened speed, but failed to do so. The vehicles were then set back to make the fly shunt, and Blake (who had seen Nicholls fail to get the coupling off) got inside an empty carriage truck next to the rear waggon for the purpose of performing the uncoupling operation, and when the driver reduced speed for this to be done he threw the coupling off and called to Nicholls "Right." Nicholls then signalled the driver quickly forward, but as the latter did not immediately start ahead Blake thought he had not seen the signal, and he raised himself up from the bottom of the vehicle because he observed at that moment that his knees were in a pool of water, and while resting his hands on the end of the vehicle it was drawn ahead quickly, causing Blake to be thrown over the end of it into the four-foot way with his right leg on the rail, where it was run over by the waggon which had been uncoupled, with the result stated above.</p> <p>Date of Accident—31st January, 1902. Place at which Accident happened—Sheepbridge. Name of Person injured—Thomas Sheppard. Age of Person injured—23. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty</p>	<p>moved further from the running line, and this might with advantage be done, as it is clear from the evidence that the enginemen on this line are in the habit of going on to the top of the tender for the same purpose as White did.</p> <p>I am of the opinion that White might have examined his water while the engine was at rest at Normanton, and having neglected to do this the responsibility for the mishap rests with himself.</p> <p>It was no part of Blake's duty to assist with the "flyshunting," as Nicholls was running alongside the vehicles with the purpose of uncoupling with his coupling pole, but as he had failed to get the coupling pole off by that means at the first attempt, probably owing to the buffers of the carriage truck being so long, Blake thought he would be in a better position to get the coupling off with his hands while lying on the bottom of the carriage truck.</p> <p>To my mind the primary cause of the mishap was fly shunting, which is done to avoid the few minutes delay that would be caused whilst the engine was running round the vehicle. This practice is far too general at this place, although, so far as siding connections are concerned, there is no necessity for it.</p>	<p>There is no rule authorising "fly shunting" nor provision made as to how it should be performed. The practice is contrary to the spirit of Rule 24 (a), and is so hazardous that it should be strictly forbidden, especially in the dark, as in this case.</p> <p>J. J. H.</p> <p>For future safety the Midland Company should use their influence with the Sheepbridge Coal and Iron Company to have the point rod protected with side timbers and the ballast made level with the sleepers, so</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
cont.	<p>at time of Accident—1½ hours. Nature of Injury—Left knee injured.</p> <p>Description of Accident—At about 11.30 on the night in question Sheppard was working with a shunting engine, to which he attached 15 waggons, in what is locally known as the "New Cinder Cracker siding." Whilst the vehicles were being drawn out of that siding he rode upon the foot-step of the engine until reaching a certain pair of hand-points which it was necessary for him to hold, to place the vehicles in the yard. When alighting from the engine for the purpose of holding the points he caught his foot under the point rod, which is badly exposed, and fell, with the result stated above.</p>	<p>The mishap was due to these obstructions and to the fact of the place being in absolute darkness.</p>	<p>as to prevent the ends being so badly exposed as to form an obstruction. In addition the Midland Company should make arrangements for the sidings being sufficiently lighted to enable the men to see to perform the necessary shunting operations with less risk.</p> <p>The shunting is very heavy in these sidings, and it is unfair to expect the men to perform such dangerous work in absolute darkness.</p>
	<p>Date of Accident—6th February, 1902. Place at which Accident happened—Eckington and Kerishaw. Name of Person injured—Albert Hatfield. Age of Person injured—42. Capacity in which employed—Waggon Examiner. Number of booked working hours per diem—12. How long on duty at time of Accident—10½ hours. Nature of Injury—Left eye injured.</p> <p>Description of Accident—It is Hatfield's duty to examine the waggons which pass through the sidings at Eckington. At about 4.40 a.m. he was engaged at some waggons then standing in what is locally known as the Great Central Exchange siding and whilst walking in the 8-foot space between the siding referred to and the down main line his left foot got under the exposed head of a point rod bench—which carries a parallel point rod between the siding and main line—and falling to the ballast his face struck a piece of coal, and his left eye was injured as stated, from the effects of which he was off duty 15 days.</p>	<p>The head of the point rod bench referred to was standing at least two inches above the path along which Hatfield had to walk, and, as it was dark at the time it was impossible for him to see its position.</p> <p>The condition of the bench and the position of the point rod mentioned undoubtedly form a very dangerous obstruction, which to my mind was the cause of the mishap.</p>	<p>At the time of my Inquiry men were engaged in preparing for the removal of the point rod to the off side of the Exchange siding, which, of course, will remove the obstruction which led to this accident, but for future safety I suggest that the many sleepers now badly exposed in the same siding should be covered with ballast.</p>
	<p>Date of Accident—19th February, 1902. Place at which Accident happened—Worcester. Name of Person injured—Frank Miles. Age of Person injured—23. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—5 hours. Nature of injury—Both hands and right knee cut and bruised.</p> <p>Description of Accident—On the arrival of an up goods train at about 1 o'clock on the morning in question, the break van and several waggons had to be shunted into different sidings. Miles was in charge of the shunting operations, and for hand signalling purposes he ran rather wide of the sidings, and momentarily forgetting that the path he was then taking was obstructed with stock sleepers and ballast, he stumbled over one of the sleepers.</p>	<p>At the point in question there is a space of about 18 feet between the main line and sidings, which, from evidence given, during the last 25 years has been used for storing sleepers and ballast by the Engineer's department. The sleepers were placed about 6 feet from the siding rail, and as there was a good lamp only 7 yards distant, I certainly think that with proper care on the part of Miles the mishap would not have happened.</p> <p>The Company's representatives, who attended my Inquiry, agreed that another position might be found for storing purposes, and to avoid any risk of accidents in the future they promised that this should be done, consequently no further action seems necessary.</p>	A. F.

J. J. H.

A. F.

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i> ...	<p>Date of Accident—22nd February, 1902. Place at which Accident happened—Ashby. Name of Person injured—Thomas Toon. Age of Person injured—40. Capacity in which employed—Goods Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—5½ hours. Nature of Injury—Right hand and left ear cut and bruised.</p> <p>Description of Accident—Toon was working in charge of the 11.30 a.m. goods train from Burton to Coalville. On reaching Ashby at 3.45 p.m., after detaching certain waggons, a tranship waggon had to be taken to the goods shed, but owing to the goods shed siding being nearly full of waggons, before the tranship waggon could be got to the unloading stage, it was necessary either to take some of the standing waggons from the siding at the goods shed end or to push them foul of other sidings at the opposite end of the goods yard. As the work was not likely to occupy much time, and there being no other engine then in the goods yard, the latter arrangement was agreed upon by Toon and the yardsman, J. A. Lovell, who intended to draw the waggons back to their former position after the tranships had been put out. In the meantime an engine was taken to the yard at the opposite end for the purpose of being run to the turntable, and owing to the engine driver, T. Brown, and the fireman, T. Lacy, not noticing that one of the waggons in the goods shed road had been pushed foul of the siding on which the engine was running, they allowed the latter to collide with the waggon with such force as to cause at least 16 waggons to be moved back towards the goods shed, with the result that Toon, who just at that time was standing on the door of the tranship waggon for the purpose of replacing the sheet over the goods, was thrown down and injured as stated.</p> <p>Date of Accident—February 24th, 1902. Place at which accident happened—Sheepbridge. Name of Person injured—Walter Barnes. Age of Person injured—23. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—4 hours 10 minutes. Nature of Injury—Left shoulder injured.</p> <p>Description of Accident—In this case Barnes and shunter Shakespeare were working with tank engine No. 1,693, which had drawn 11 waggons out of Pearson's Pottery siding. Eight of the vehicles were shunted into No. 4 exchange siding, and while the other three were being shunted back into the Pottery siding Barnes, when in the act of uncoupling them from the engine, got dangerously near to the point handle which Shakespeare was holding to allow the vehicles to run into the siding, and by some means which he is unable to explain, his foot slipped and he fell against the bunker end of the engine, with the result stated above.</p>	<p>In this case, although I am of opinion that both Toon and Lovell are equally to blame for pushing the waggons in the goods shed siding foul of the others adjoining, contrary to Rule 184(c), I consider the driver and fireman are equally, if not chiefly, to blame for the accident. They were running the engine into one of the sidings for locomotive purposes, and being unattended by a shunter it was certainly their duty to see that all was clear. Had they been keeping a proper look out as directed by Rules 139 and 146, the mishap would not have happened.</p> <p>A. F.</p> <p>The mishap appears to have been a pure accident.</p>	<p>The point handle which was being held by Shakespeare, and which Barnes was so anxious to avoid, might with advantage be removed further back from the running line and made to fall parallel with it instead of towards it, and further, the point rod should be protected with side timbers and the ballast brought up to a level with the top of the timbers.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i> ...	<p>Date of Accident—3rd March, 1902. Place at which Accident happened—Chaddeeden sidings, Derby. Name of Person injured—Charles Grummett. Age of Person injured—32. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—1½ hours. Nature of Injury—Toe crushed.</p> <p>Description of Accident—Grummett was acting as fireman for engine driver G. Wright, and had booked on duty to work the 4.30 p.m. mineral train from Derby to Chaddeeden sidings and Ripley. On reaching Chaddeeden sidings at 4.40 p.m. the engine was taken to a siding and attached to the waggons which had to be taken forward. After the waggons had been closed up for coupling and the engine had been brought to a stand, Grummett left the footplate and went to clean and trim the lamps on the front of the engine. During his absence from the footplate, and without knowing his exact position, the engine driver set the engine in motion. Grummett had by that time trimmed the lamps, but whilst he was returning to the footplate he from some cause slipped on the top of the side framing along which he was walking, and his left foot getting under the spring was crushed between the spring buckle and the framing, and so injured as to cause him to be off duty 17 days.</p> <p>Date of Accident—6th March, 1902. Place at which Accident happened—Bolsover Colliery. Name of Person injured—William J. Whittock. Age of Person injured—24. Capacity in which employed—Under Goods Guard. Number of booked working hours per diem—11. How long on duty at time of Accident—8½ hours. Nature of Injury—Both legs injured; left one taken off.</p> <p>Description of Accident—On the night in question Whittock was working with the 6 p.m. mineral train from Staveley to Bolsover Colliery. As usual the train was taken to Bolsover Station, about ¼ mile east of the colliery, for the purpose of getting the engine round the train, after which the train was drawn along the single line to the colliery. On arrival there Whittock was on the south side of the train for signalling purposes, and after getting the driver's attention to set back he attempted to cross over in front of it for the purpose of being in a better position to see his head guards' signal, who had gone forward to set the points, and while doing so he thinks that he stepped on a piece of coal and fell across the rail, and before he could recover himself he was caught by the leading waggon and dragged for several yards, with the result stated above.</p> <p>Date of Accident—7th March, 1902. Place at which Accident happened—Westhouses and Blackwell. Name of Person injured—Samuel</p>	<p>In this case, although the lamps should have been prepared for use before the engine left the sheds, as the engine was not in motion when Grummett left the footplate and the driver knew why he had gone to the front of the engine, I do not think Grummett is in any way to blame.</p> <p>Wright fully admits that there was no necessity for him to start the engine during Grummett's absence from the footplate, and that in doing so he was acting contrary to the Company's Rule 24 (a) and the special instructions recently issued to warn enginemmen against exposing themselves to danger, and the only excuse he can give for so doing is that he was "simply working according to the general practice."</p> <p>This mishap, which might have been far more serious, was due to the non-observance of the rule and special instructions referred to, for which in my opinion engine driver C. Wright is very much to blame.</p> <p>A. F.</p> <p>The mishap appears to have been due to misadventure. The lighting appears satisfactory, but at the time it was so foggy that both Whittock and Howard (the head guard) had to give the signals by whistling. Whittock's signal was heard by the driver, who acknowledged it, the acknowledgment being heard by Whittock.</p> <p>J. J. H.</p> <p>There was really no necessity for Allen to have attempted to alight before the engine had been</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i> ...	<p>Allen. Age of Person injured—24. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—14 hours. Nature of Injury—Face cut and bruised.</p> <p>Description of Accident—On the 6th February Allen booked on duty at 3.40 p.m. for the purpose of working with the 4.10 p.m. mineral train from Blackwell to Worksop and back. In consequence of extra traffic the train was much delayed, and the enginemmen were relieved at Tipsheaf at 5.5 a.m. From that point Allen and the engine driver, A. Webster, rode to Westhouses and Blackwell on a light engine which was then being run to the engine sheds.</p> <p>When within a few yards of the point where the engine was to stop for Allen and Webster to alight Allen got on the footstep, and in doing so his coat caught the handle of a water bucket and pulled it over. To avoid the water he jumped from the footstep to the ballast, and in stumbling he received injuries as stated above.</p>	<p>brought to a stand, and except for the reasons mentioned he states he should not have done so. In this case I am of opinion that the accident was due to misadventure.</p> <p>A. F.</p>	
MIDLAND AND GREAT NORTHERN JOINT.	<p>Date of Accident—5th February, 1902. Place at which Accident happened—Great Yarmouth. Name of Person injured—Bertie G. Pitcher. Age of Person injured—20. Capacity in which employed—Engine cleaner. Number of booked working hours per diem—11. How long on duty at time of Accident—24 hours. Nature of Injury—Right knee injured. Off duty 14 days.</p> <p>Description of Accident—On the night in question Pitcher and engine driver Thomas Hubbard, with engine No. 28, were engaged in moving dead engines Nos. 9 and 27 from the east to the west line in the engine shed. When the latter engine was over the points leading to the latter line Pitcher alighted from engine No. 28 to set the points in position, and when running forward for that purpose he caught his foot in some boxing fixed between the outlet from the engine shed and platform line and fell with his right knee on the rail of the latter line, with the result stated above.</p>	<p>The boxing in question covers two signal wires, and where it is nailed to a cross-piece of timber is fully one inch higher than the timber, thus forming an obstruction which was the chief cause of the mishap.</p> <p>To add to Pitcher's dangers the torch light he was using went out as he alighted from engine No. 28, apparently having been blown out by the strong wind prevailing.</p>	<p>For future safety the bottom of the boxing should be made slanting towards the cross piece of timber, and arrangements should be made for the engine cleaners, when acting as firemen, to be supplied with a hand-lamp for their use during the shunting of the engines, both for showing them a light in the path they have to take while attending to the points and for signalling purposes.</p> <p>J. J. H.</p>
NORTH BRITISH ...	<p>Date of Accident—30th January, 1902. Place at which Accident happened—Burntisland locomotive shed—Name of Person injured—Alexander Scotland. Age of Person injured—17. Capacity in which employed—Engine cleaner. Number of booked working hours per diem—12. How long on duty at time of Accident—1 hour and 10 minutes. Nature of Injury—Left foot crushed, necessitating the amputation of two toes.</p> <p>Description of Accident—In the centre of the Burntisland sheds there is a turntable, from which, in addition to the through line, there are 14 short roads, on each of which there is standing room for one engine. On the night in question engine No. 551 was standing at</p>	<p>The engine shed referred to has been in use for many years, consequently the stalls or short roads are not of sufficient length to allow an engine of modern build to stand clear of the table, so that it frequently occurs that engines have to stand foul of the table, in which case, as on the night in question, a red light is exhibited to indicate the position of the engine.</p> <p>There is no doubt that fireman G. Campbell is somewhat to blame for not exercising more care; at the same time, I feel it would be unfair to attach a'l the</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
TISH—	<p>the north end of the through line, but to enable him to get into position for packing the pistons the driver set the engine back with the trailing wheels of the tender only just clear of the turntable, and as a protection a red light was placed on the rear of the tender. At about 7.10 p.m. Scotland was just finishing cleaning the motion, and whilst under the engine and standing on the side of the pit, so as to be able to reach a certain part of the gearing, he placed his left foot on the rail. Just at that time fireman G. Campbell took another engine, No. 154, from the coaling stage to the shed, and whilst trying to bring it to a stand at a certain mark on the table, where he knew the latter would be evenly balanced, he misjudged the distance of the engine ahead, with the result that as the moving engine closed up to the standing engine the latter was slightly moved, and Scotland's left foot was crushed as stated.</p> <p>Date of Accident—31st January, 1902. Place at which Accident happened—Queen Street, Glasgow. Name of Person killed—Donald McDonald. Age of Person killed—37. Capacity in which employed—Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—4½ hours.</p> <p>Description of Accident—McDonald and another shunter named Walter Harper were sent to sheet a certain waggon, which, with others, was standing in the goods shed in what is locally known as the "starting" siding. On reaching the waggon it was found that some of the sheet-cords were missing, and Harper left McDonald and went to another part of the shed to get others. Whilst left at the waggon McDonald was engaged fixing the sheet at the rear end, and hearing a call from a carter named J. Hutton that a goods van was running down the siding he tried to get from between the rails, but before he could do so, the goods van, which had been run into the siding by shunter W. Clarkson, closed up to the standing waggons and McDonald was crushed between the buffers and so injured that he died on the sixth day following.</p> <p>Date of Accident—4th February, 1902. Place at which Accident happened—St. Margaret's, Edinburgh. Name of Person injured—Thomas Lindores. Age of Person injured—54.</p>	<p>blame to him. He has only been in the service since 1900, and although he is only 20 years of age and has had very little experience, even as a fireman, yet owing to the illness of the shed engine driver with whom Campbell was usually employed, he had for three nights been acting as shed engine-driver, with only a very young cleaner as an assistant, as instructed by, or with the approval of, the assistant shed foreman J. M. Taylor. For the safety of the staff in such a shed as that at Burntisland the greatest care is absolutely necessary when moving engines, and in having appointed an inexperienced youth to do the work, contrary to the Company's special instruction, I am of opinion that the assistant shed foreman is chiefly to blame for the accident, which might have been far more serious.</p> <p>A. F.</p> <p>The goods van referred to is worked to Glasgow daily on a passenger train, and is always shunted into the same siding. Clarkson is a passenger shunter and knows little of the goods shed working, but, about 5 minutes previous to making the shunt, as he was walking down the platform from which he could get a good view of the siding, he satisfied himself that there was then no one at the waggons, and, consequently, when making the shunt he did not think that any further precautions were necessary, with the result that McDonald, who had gone to the waggon after Clarkson had passed it, was injured as stated.</p> <p>From the evidence given at my inquiry it appears that, although men are frequently working at waggons standing in the "starting" siding, it is not usual for the passenger shunters to give any warning before shunting the goods van into it. I am satisfied that, as he says, Clarkson was working according to the usual practice, but, of course, that does not justify him in not acting to the Company's Rule 112a, and I must, therefore, hold him responsible for the mishap.</p> <p>In this case engine driver Robert Watt walked forward to engine 488, and asked John Brand, fireman with Lindores, where the</p>	<p>For future safety I recommend that, owing to there not being a good view of the "starting" siding from the passenger shunting neck, when disposing of the goods van in question it should not be loose shunted into the siding, in which case the shunter would be at liberty to see and warn any person in danger.</p> <p>A. F.</p>





REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>Date of Accident—16th February, 1902. Place at which Accident happened—Bothwell. Name of Person injured—John McDonald. Age of Person injured—32. Capacity in which employed—Goods Guard. Number of booked working hours per diem—12, with 1 hour off for meals. How long on duty at time of Accident—9½ hours. Nature of Injury—Left knee injured.</p> <p>Description of Accident—In this case, during shunting operations, McDonald was steadying into a siding four waggons which had been uncoupled by goods guard William Morrow. For this purpose he applied two waggon brakes, but as they were both defective he attempted to place a sprag in the wheel of the leading vehicle, when it rebounded and struck his left knee, so injuring it as to cause him to be off duty one week.</p>	<p>The mishap appears to have been chiefly due to the waggon brakes being defective.</p>	<p>For future safety steps should be taken to see that more care is given to the examination and renewal of waggon brakes, so that the necessity for so much spragging, which is far too prevalent on this line, may be lessened.</p> <p>J. J. H.</p>
	<p>Date of Accident—February 17th, 1902. Place at which Accident happened—Broxburn Junction. Name of Person injured—George Brown. Age of Person injured—21. Capacity in which employed—Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—8 hours. Nature of Injury—Left leg run over and so severely injured as to render amputation necessary.</p> <p>Description of Accident—On the afternoon in question the injured man was assisting goods guard Hugh Brown with the shunting operations, and while a train of 22 waggons which had arrived from Broxburn oil works was being drawn along the shunting neck he observed what he thought to be an ordinary sprag in one of the waggon wheels, but which was afterwards found to be a pit prop 6½ feet in length, which was also through the waggon wheel at the opposite side. He followed the train, intending to take the sprag out the moment the vehicle was set back. He succeeded in getting the pit prop out of the wheel furthest from him, but before he could get it out of the other wheel he was knocked down by it with his left leg on the rail, with the result stated above.</p>	<p>The pit prop in question had evidently been placed in the waggon wheels at Broxburn Oil Works, but it cannot be ascertained by whom, and when goods guard Hugh Brown attached his engine to the vehicles there he did not observe it until porter George Brown drew his attention to it, when thinking it was an ordinary sprag he replied "You had better take it out," and while porter Brown walked forward for that purpose he walked back to hold a pair of hand points.</p> <p>The mishap appears to have been a pure accident.</p> <p>J. J. H.</p>	
	<p>Date of Accident—February 21st, 1902. Place at which Accident happened—Broxburn Junction. Name of person injured—Hugh Brown. Age of person injured—40. Capacity in which employed—Goods Guard. Number of booked working hours per diem—11½. How long on duty at time of Accident—2 hours 50 minutes. Nature of Injury—Left leg injured. Off duty 3½ weeks.</p> <p>Description of Accident—In this case Brown was working trains between Broxburn Junction and Broxburn Oil Works, a distance of about ¼ of a mile. At about 9.40 a.m. his train arrived at the latter place with eight waggons, which were placed in the short siding adjoining the single running line to and from the oil works. For the purpose of placing the eight vehicles</p>	<p>The mishap was chiefly due to the men having been permitted to prop the points in the manner described owing to there not being sufficient staff to properly perform the necessary shunting operations. In this case Brown had no other alternative but to prop the points, as it was impossible, owing to the shunting neck being on a curve, for him to signal his driver or to perform the necessary uncoupling operations and at the same time to hold the points.</p> <p>He was working alone, as the porter was otherwise engaged. This frequently happens, owing to the</p>	<p>For future safety it is desirable that arrangements should be made for assistance being given to the goods guards with the shunting operations.</p> <p>Further, the present points could with advantage be replaced by tumbler points, which could be set for either the branch line or the siding without having to be held, and when these alterations are being made the point rods, which are badly exposed at present, should be protected with side timbers, with the ballast brought up to a level with the top of the timbers.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>into the short siding, Brown, to set the points and keep them in position for that siding, placed a brick on the top of the point box and underneath the point lever, after which the engine was taken into another siding and attached to 11 waggons for the oil works, and while these were being propelled towards the line leading there Brown rode between the two leading vehicles, which, owing to the points being propped up, entered the short siding and came in collision with the vehicles standing there, causing the two vehicles he was riding between to be derailed and buffer locked, and his left leg to be crushed between them, with the result stated above.</p> <p>Date of Accident—February 25th, 1902. Place at which Accident happened—Drem. Name of Person injured—William Cochrane. Age of person injured—26. Capacity in which employed—Fireman. Number of booked working hours per diem—12. How long on duty at time of Accident—3½ hours. Nature of Injury—Right foot injured.</p> <p>Description of Accident—Cochrane was working with the 2.35 p.m. goods train from Berwick to College (Glasgow), which arrived at Drem at 5.18 p.m., where some shunting operations were necessary, and owing to neither of the two porters being in attendance it was necessary for Cochrane to leave the footplate of his engine to hold a certain pair of hand points. After doing so he allowed the point handle to fall on his right foot, with the result stated above.</p> <p>Date of Accident—7th March, 1902. Place at which Accident happened—Easterhouse. Name of Person injured—John Adams. Age of Person injured—46. Capacity in which employed—Goods Guard. Number of booked working hours per diem—11. How long on duty at time of Accident—5½ hours. Nature of Injury—Right arm fractured.</p> <p>Description of Accident—Adams was working in charge of the 5.30 a.m. goods train from Kipps to Camlachie. On arrival at Easterhouse at 8.10 a.m. (two hours late) there were three waggons to attach and three to detach. After having attached the former, instead of the engine being run round the three waggons for detaching they were placed in the front siding, from which it was hoped they would run to the goods shed by gravitation. Finding that they would not do so Adams decided to tow them into the goods shed siding, and he therefore attached one end of the tow rope to the coupling of the last of the three waggons attached to the engine and placed the other end in the horse hook on the side of the three he had placed in the siding. As the latter closed up to the other waggons standing in the siding they rebounded, with the result that the horse hook was pulled from the side of the waggon, and the rope swinging round struck Richardson, with the result stated.</p>	<p>porter having so many duties to perform. Under these circumstances it is not surprising that Brown forgot to remove the brick.</p> <p>The mishap appears to have been chiefly due to Cochrane's own want of care. At the same time the evidence discloses the fact that the firemen are regularly in the habit of leaving the footplates of their engines for the purpose of holding points, owing to none of the station staff attending to the train Cochrane was working with.</p> <p>The necessary provision is made at Easterhouse for running round purposes, and consequently towing is unnecessary at that station; but even if it had been necessary Adams acted very unwisely in attaching the tow rope to the horse hook.</p> <p>I am of opinion that in this case the accident was due to the injured man's own want of caution.</p>	<p>For future safety it is desirable that arrangements should be made for the fireman to remain on the footplate and assist his driver when shunting operations are proceeding at this place.</p> <p>J. J. H.</p> <p>For future safety I recommend that the Company should not only forbid the towing of waggons at this station, but that at this and all other places where tow-rope is unnecessary the tow-rope should be withdrawn.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>NORTH BRITISH—</b> <i>cont.</i>	<p>Date of Accident—10th March, 1902. Place at which Accident happened—Dundee. Name of Person killed—Andrew Bayne. Age of Person killed—50. Capacity in which employed—Ganger of Platelayers. Number of booked working hours per diem—11. How long on duty at time of Accident—10 hours 20 minutes.</p> <p>Description of Accident—Bayne was the ganger of the section of main line between Dundee Central Junction and the Dundee and Arbroath joint station. On the date in question he and two platelayers were working near the Central Junction. At about 4.45 p.m., according to his usual practice, he sent his two labourers over the tunnel section for the purpose of examining the line. During that time he continued with the work at which they had all been previously engaged. At about 5.20 p.m., whilst he was working on the down main line nearly opposite the Central Junction, he was knocked down by the engine working the 4.16 p.m. passenger train from Ladybank to Dundee and killed.</p>	<p>At the time of the mishap there was a shunting engine working on a siding close to the point where Bayne was standing, and there is no doubt that the noise from that engine prevented him hearing the passenger train approaching. I understand that for some days previous to the accident Bayne had been working a man short of his usual staff, consequently he would no doubt be anxious to do as much work as he could himself; but I certainly think he acted very unwisely in working alone at what is acknowledged by the District Inspector to be a very busy and dangerous part of the line.</p> <p>In this, as in many similar cases, neither of the enginemmen saw the deceased or knew anything of the accident until informed later.</p> <p>I am of opinion that, owing to a favourable curve in the line, had the fireman been keeping a proper look out he might have seen Bayne. Had he done so and sounded his engine whistle, as per Rule 153, the mishap might have been avoided.</p>	<p>The permanent way district inspector stated at my inquiry that at the time of the mishap Bayne was working at the most dangerous part of the line, and from the nature of the traffic and formation of the lines I should think that is correct. For future safety I recommend that the Company should issue instructions against any man working alone at or near that point, and that whenever men are engaged there a look-out man should be appointed.</p> <p>In addition I suggest that the Company should call the special attention of enginemmen to the necessity of their keeping a good look-out and warning platelayers and others by sounding their engine whistles in accordance with the rule mentioned.</p> <p style="text-align: right;">A. F.</p>
	<p>Date of Accident—12th March, 1902. Place at which Accident happened—Waterside Junction, near Lenzie. Name of Person killed—James Taylor. Age of Person killed—64. Capacity in which employed—Platelayer. Number of booked working hours per diem—11. How long on duty at time of Accident—25 minutes.</p> <p>Description of Accident—Taylor was one of four platelayers, including the ganger, employed on a mineral line leading eastwards from Waterside Junction. On the morning in question, after giving his three labourers the necessary instructions, the ganger, W. Stirling, went round his length in accordance with Rule 260 (a). He left the men working about 150 yards east of the Junction mentioned. Shortly afterwards one of the men went to the Junction signal cabin for a tool, leaving Allen Reid—the first labourer—and James Taylor working at the point referred to. At about 7.25 a.m. Reid was working on the off side and Taylor on the 6-foot side of the down line. At that time a mineral train ran from the main line, but neither of the men noticed it approaching until it was close to them, and then, whilst Taylor was trying to get clear, he was struck by the engine and killed.</p>	<p>It is difficult to understand how two platelayers could be working at such a point without seeing or hearing an approaching train. It is said that at the time of the mishap a cattle train was passing the Junction on the main line 150 yards distant, and from Reid's evidence it appears that having seen that train they were under the impression that the noise they afterwards heard was caused by the cattle train. That, however, would not prevent them seeing the mineral train, and I am therefore of opinion that the mishap was due to want of caution, for which, as leading labourer, I must hold Reid chiefly responsible.</p> <p>In this case neither the driver, A. Peebles, nor his fireman, J. Sorel, knew anything of the mishap until some time afterwards. The fireman states that, owing to his being otherwise engaged, he did not see Reid until the engine was within its length of him; but although he noticed some unusual movement on the part of Reid he did not see Taylor. I believe his statement, but those made by the engine driver were so very contradictory that his</p>	



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH - EASTERN — <i>cont.</i>	works Company. It was Hedley's duty to copy the particulars entered on the labels of all waggons going to and from these sidings. On the night in question an engine was run from the Beamish Junction for the purpose of taking four waggons from the Beamish Colliery sidings, and six others from the Birtley sidings. As the engine with the ten waggons attached was leaving for the Junction, Hedley, who unknown to the guard had been working in the sidings, got on the footstep (which is provided for working the end brake lever) of the last waggon, to save himself walking to the Junction, and whilst so riding up the siding he came in contact with a waggon standing in the "middle" siding adjoining, with the result mentioned above.	certainly acted very unwisely in riding on the side of the waggons through unlighted sidings.	
	<p>Date of Accident—1st February, 1902. Place at which Accident happened—Blaydon Sidings. Name of Person injured—James Wilson. Age of Person injured—25. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—2½ hours. Nature of Injury—One rib broken and right side injured. Off duty three weeks.</p> <p>Description of Accident—The Blaydon marshalling sidings are arranged in different groups. In each case an independent goods line, or a direct lead to such line, is used as a shunting neck. For the purpose of this report it is only necessary to refer to the west and south groups, in which, owing to the sidings lying in opposite directions, the outside siding of one group runs parallel with the shunting neck of the other. The space between the No. 5 or outside siding of the west and the shunting neck for the south group at the point of the accident is only 5 feet 8 inches. On the date in question, at 12.30 a.m., a waggon by mistake was shunted into No. 5 siding west group, and for the purpose of removing it the shunting engine with several waggons in front was set back into the siding. When these vehicles joined the one at rest in No. 5 siding, Wilson attempted to couple them together with his coupling pole, but failing to do so he signalled to the driver to move steadily back to enable him to perform the coupling operation, and while so engaged he caught his foot in an exposed point rod and fell, first with his head against a waggon at rest in the shunting neck and afterwards with his right side on the point lever, with the result stated above.</p>	<p>The mishap was due to the point rod over which Wilson fell being so badly exposed, and the insufficient space between No. 5 siding and the shunting neck adjoining upon which a number of waggons were standing at the time.</p>	<p>When making my inquiry I learnt that extensive alterations were about to be commenced in these marshalling sidings, and it is to be hoped that when this work is being carried out, more space will be provided between the sidings, and especially between the shunting necks and sidings, and that instead of the single hand point levers being fixed in the paths the men have to use, the points will, as far as possible, be connected to and worked from ground frames, and the point rods protected by side timbers.</p> <p>J. J. H.</p>
	<p>Date of Accident—12th February, 1902. Place at which Accident happened—Between Forth and Central Newcastle. Name of Person injured—Thomas George. Age of Person injured—42. Capacity in which employed—Engine Driver. Number of booked working hours per diem—10. How long on duty</p>	<p>Engine driver Joseph Kidd, in charge of engine No. 737, is solely to blame for this mishap, which he admits. If he had been keeping a proper lookout the collision would not have happened.</p> <p>J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH-EASTERN— <i>cont.</i>	<p>at time of Accident — <math>\frac{1}{2}</math> hour. Nature of Injury—Both hands injured. Off duty three days.</p> <p>Description of Accident—George was working with tank engine No. 179, which was assisting in rear the 11.12 p.m. goods train (Newcastle (Forth) to Hull) from the Forth to the Central. The engine of this train was brought to rest by signal at the west end of the Central, after which George left the footplate of his engine, while it was at rest, to see what water was in the tank, and while doing so engine No. 737, in charge of engine driver J. Kidd, collided with engine No. 179 with such force as to throw the tank lid of engine No. 737 on to the tank of engine No. 179, and injured George as stated above.</p> <p>Date of Accident—26th February, 1902. Place at which Accident happened—Smardale. Name of Person injured—J. J. Raine. Age of Person injured—56. Capacity in which employed—Guard. Number of booked working hours per diem—9<math>\frac{1}{2}</math>. How long on duty at time of Accident—5 hours. Nature of Injury—Left eye cut.</p> <p>Description of Accident—The gangers of the different sections of the line between Kirkby Stephen and Tebay had all been called to the district inspectors' office at the former station for certain special instructions. Whilst there, ganger H. Spooner, who is in charge of the 3<math>\frac{1}{2}</math> mile section on which Smardale is situated, obtained from the stores a shaft for a hand hammer. Another ganger named J. Metcalfe wanted a similar shaft, and as there were no others in stock he not only asked Spooner to let him have it, but whilst riding in the return 2.11 p.m. passenger train from Kirkby Stephen it appears he jokingly remarked that if possible he should take the shaft. Just at that time the train was passing Smardale signal cabin, and to avoid any risk of losing it Spooner threw it out of the carriage window. Unfortunately the shaft struck the steps of the signal cabin and rebounded on to the train, and then striking the side light in the guard's van with great force the glass was forced inwards, with the result that a portion of the broken glass struck and cut the guard's left eye, causing injury from which at the time of my inquiry he was still off duty.</p> <p>Date of Accident—27th February, 1902. Place at which Accident happened—Tweedmouth. Name of Person injured—George W. Gibson. Age of Person injured—38. Capacity in which employed—Pilot Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—1 hour. Nature of Injury—Left ankle sprained.</p> <p>Description of Accident—At 5 a.m. on the day in question Gibson was</p>	<p>In this case the ganger, H. Spooner, acted contrary to the spirit of Rule 200, and besides fully admitting he is alone to blame for the accident, he expresses his sincere regret for the injury caused.</p> <p>A. F.</p> <p>At the extreme north end of the up independent line there is a disc signal fixed. Between this and the signal cabin, for a distance of about 150 yards the signal wire working the signal is badly exposed about 1 foot from the running line of the up independent, with which it runs parallel. It works on pulleys which are</p>	<p>For future safety the small posts and signal wire should be removed, and instructions given that empty carriages must not be left standing at night in the siding so near to the north end of the yard as to obscure the light at and about the spot where this accident occurred. Further, if possible, a greater clearance should be given</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH-EASTERN— <i>cont.</i>	engaged shunting. He attached his engine to 15 waggons standing on the up independent line and then signalled his driver ahead, after which he commenced to examine the labels on the waggons, and while running alongside the rear vehicle for that purpose he caught his foot in one of the small posts on which the signal wire pulleys are fixed, and fell, with the result stated above.	fixed on small posts from 7 to 9 inches high, and from 12 to 14 yards apart. The space between the up independent line and the adjoining siding is only 5 feet at the spot where the mishap happened, and owing to there being some empty carriages standing in the siding, the light from the lamps in the yard was obscured. The mishap was chiefly due to the obstructions mentioned, and to the place being in darkness.	between the up independent line and the adjoining siding. J. J. H.
	Date of Accident—1st March, 1902. Place at which Accident happened—Forth Coal Dépôt, Newcastle. Name of Person injured—George Knox. Age of Person injured—52. Capacity in which employed—Mineral Guard. Number of booked working hours per diem—10. How long on duty at time of Accident—7½ hours. Nature of Injury—Middle finger of left hand injured. Description of Accident—At the Forth Coal Dépôt, coal cells are provided for the use of traders. Between the cells there are walls upon which girders are fixed which carry two elevated sidings. For unloading, the waggons are placed over the cells and the coal and lime runs through the doors at the bottom of the waggons. The two high level sidings are reached by a sharp incline, but there is also a siding similarly used on the low level, each siding holding 21 waggons. In this case a waggon standing on the top of the incline in No. 2 siding was required past the engine which stood on the low level. For this purpose Knox released the brake of the vehicle, but it did not run clear for the engine to be taken against it. To get it clear Knox placed one end of a prop against the centre bar of the waggon and the other end against the bunker of the engine, and while holding the prop it slipped, with the result that his finger was so injured as to cause him to be off duty two weeks.	The mishap appears to have been accidental. At the same time it is clear from the evidence that propping is far too general at this place, chiefly owing to the engine being only able to travel along No. 2 (the centre) siding.	For future safety, and with a view to avoid the necessity for so much propping, the Company should consider the advisability of so strengthening the walls that an engine can be taken along any of the sidings to place the waggons where they are required. J. J. H.
	Date of Accident—14th March, 1902. Place at which Accident happened—Knaresboro'. Name of Person injured—Sam Boeth. Age of Person injured—26. Capacity in which employed—Porter. Number of booked working hours per diem 12, with 1½ hours off for meals. How long on duty at time of Accident—11 hours 10 minutes. Nature of Injury—Middle finger of left hand injured. Description of Accident—The unloading dock and sidings at Knaresboro' are fully a quarter of a mile south of the passenger station. In this case the 10.23 p.m. passenger train, Harrogate to York, had next the engine a Great Western Company's horse-box, No. 686 (which contained one horse).* For the	Although the mishap appears to have been accidental, if the horse-box had been fitted with a hand-brake it would not have occurred, because in that case there would not have been any necessity for Booth to have used a brake stick, but under the circumstances it was impossible for him to properly attend to the horse-box, as he had to leave it in motion while he ran forward to hold the hand points, and to add to his dangers the place was in absolute darkness.*	In order to prevent future accidents of this nature it is desirable that all horse-boxes should be fitted with hand-brakes, and until this is done loose shunting of these vehicles by gravitation should not be allowed at this place unless two men are in attendance to perform the work, so that one can attend to the proper control of the vehicle and the other to the hand points. In addition, as a considerable amount of shunting takes place in the dark at certain periods of the year, sufficient light should be provided to enable the men to see to per-

\* The statement, given in evidence, that the Great Western Railway Company's horse-box was not fitted with a hand-brake was subsequently found to be incorrect.



## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH - EASTERN — cont.	<p>purpose of placing the vehicle in the unloading dock Booth accompanied the train from the passenger station to the sidings, where the train was brought to rest and the vehicle taken from the up to the down main, over the points leading to the sidings. While it was running by gravitation from the down main line towards the unloading dock Booth placed his brake stick on the top of the axle guard while he ran forward to hold a pair of hand points to allow the horse-box to run into the unloading dock siding, when by some means the brake stick slipped and got jammed between the spokes of the wheel and axle guard. After Booth had released the brake stick, he, for the purpose of starting the vehicle again, used his brake stick as a lever, by placing it under the wheel of the vehicle, when probably owing to the rail being wet and greasy the brake stick slipped and his finger was caught between it and the rail and slightly injured, causing him to be off duty two days.</p>		<p>form their work with the least possible risk.</p> <p>J. J. H.</p>
	<p>Date of Accident—19th March, 1902. Place at which Accident happened—Kirkby Stephen. Name of Person injured—John William Dowson. Age of Person injured—27. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—9½ hours. Nature of Injury—Nose and left eye cut.</p> <p>Description of Accident—On the night in question a brake-van standing behind some others in the van line was required in the carriage siding adjoining. After it had been drawn over the van line points, Dowson uncoupled it and then held the points for it to run back by gravitation into the carriage siding, and while it was running into that siding, when attempting to apply the brake, he allowed it to collide with another brake-van at rest, with the result that he was thrown down and so injured as to cause him to be off duty ten days.</p>	<p>The mishap was due to Dowson misjudging the speed the brake-van was travelling at, and although the gradient it was running down is only slight, owing to the wind blowing strongly from the west the brake-van travelled quicker than usual.</p> <p>J. J. H.</p>	
	<p>Date of Accident—March 21, 1902. Place at which Accident happened—Darlington Bank Top. Name of Person injured—Marshall Bradley. Age of Person injured—43. Capacity in which employed—Goods Guard. Number of booked working hours per diem—11. How long on duty at time of Accident—3½ hours. Nature of Injury—Face injured.</p> <p>Description of Accident—Bradley was working with the 10.35 p.m. goods train from York to Darlington. While disposing of the train at the north end of "Bank Top" goods yard at about 1.10 a.m., he first uncoupled his brake-van and shunted it into the York Road, after which he signalled his driver to set the vehicles back into the Leeds road, and while this was being done he attempted to put down some of the waggon brakes,</p>	<p>At the spot where this accident happened the point rod is badly exposed for 21 inches from the running line to the point box, and then the point handle hangs outwards from the opposite side of the point box across the path it was necessary for Bradley to take, and to add to his dangers the place was in absolute darkness.</p> <p>I am of opinion that the mishap was due to the obstructions mentioned and the want of light.</p>	<p>For future safety the point handle in question, and the others near the place which are similarly fixed, should be made to fall parallel with the running line, instead of from it, and the point rods should be protected with side timbers. Further, sufficient light should be provided to enable the men to see to do their work.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH-EASTERN— <i>cont.</i>	<p>when he caught his foot under a point handle, and as he was falling, the coupling pole he was carrying caught one of the moving waggons, with the result that when he fell to the ground he fell with his face on to the hook end of his coupling pole, so injuring it as to cause him to be off duty one week.</p> <p>Date of Accident—27th March, 1902. Place at which Accident happened—Wilmington Goods Yard (Hull). Name of Person injured—Samuel Arksey. Age of Person injured—22. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Chest and right leg crushed.</p> <p>Description of Accident—Arksey was working with the Wilmington goods yard shunting engine. At about 1.30 p.m. the engine was taken from the goods yard to the Dansom Lane Coal Depot—about 300 yards distant—for the purpose of removing two empty coal waggons. On returning to the <i>facing</i> coal yard sidings, owing to there being no ready means by which the engine could be run round the two waggons, in accordance with the usual practice a “fly shunt” was attempted. It was intended that the engine should run into the coal sidings and that the waggons should run on to the adjoining loop line. Unfortunately the waggons did not run clear of the crossing, and the only way they could then be got clear was either to push them clear by hand or to tow them with a chain kept on the engine. The latter arrangement was agreed to, and as there was then only one shunter in attendance (the second shunter had left to get his mid-day meal), the fireman, S. Arksey, got off the engine to assist in attaching and detaching the chain from the engine and waggon. After the waggons had cleared the crossing Arksey attempted to detach the chain from the draw-bar of the leading vehicle, but before he could do so it dragged and caught a point lever, and consequently the chain tightened, and as the waggon passed the then standing engine Arksey was crushed between the chain and the end of the waggon, and was so injured that at the time of my inquiry he was still off duty.</p>	<p>In this case the shunter, C. W. Rogerson, acted very unwisely in taking the engine to the coal depot, and in attempting to make the fly shunt, and especially during the absence of his mate, J. Harrison; and in leaving the engine for the purpose stated, Arksey undoubtedly exceeded his duty, although with more care on Arksey's part the mishap might have been avoided. I am satisfied that each of the men concerned acted as they thought best for facilitating the working.</p> <p>From the evidence given it appears that when there are more than six waggons taken from the coal depôts to the goods yard sidings they are placed on the up main line, and for running round purposes the engine is taken through the cross-over roads situated at Wilmington passenger station and goods yard signal cabins, which are about 300 yards apart; but if there are not more than six waggons, to avoid delay it is usual to run them past the engine, <i>i.e.</i>, make a “fly shunt” such as was attempted in this case. I am of opinion that the primary cause of this mishap was the fact of there being no ready means by which an engine could be run round the waggons taken from the coal depôts.</p>	<p>For future safety I recommend that for running round purposes a cross-over road should be put in between two of the goods yards sidings, and until that can be brought into use instructions should be given that to avoid “fly shunting” when any number of waggons are taken from the coal depot the engine should be run through the cross-over roads at the station and goods yard signal cabins.</p> <p>A. F.</p>









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# TABLE OF CONTENTS.

	PAGE
<b>SUMMARY of ACCIDENTS and CASUALTIES</b> reported to the BOARD of TRADE during the Six Months ending 30th June 1902 ... ..	3
<b>TABLES :—</b>	
<b>GENERAL NOTE</b> showing basis on which TABLES are COMPILED ... ..	8
<b>No. 1.—SUMMARY STATEMENT</b> of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	9
<b>No. 2.—NUMBER</b> of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, in the different CLASSES of ACCIDENTS to TRAINS ... ..	10
<b>No. 3.—NUMBER</b> of PASSENGERS, SERVANTS of the COMPANIES and CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS, or by the MOVEMENT of RAILWAY VEHICLES ... ..	12
<b>No. 4.—NUMBER</b> of PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the different CLASSES of ACCIDENTS occurring on the Lines of the several RAILWAY COMPANIES, to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the COMPANIES ... ..	14
<b>No. 5.—NUMBER</b> of PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS, or the MOVEMENT of RAILWAY VEHICLES—	
A. PASSENGERS ... ..	16
B. SERVANTS of COMPANIES and CONTRACTORS ... ..	18
C. OTHER PERSONS ... ..	24
<b>No. 6.—NUMBER</b> of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the INJURIES; with figures for the corresponding period of the previous Year ... ..	26
<b>No. 7.—STATEMENT</b> showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES; and also the Total Number of Persons employed in each Class of Service ... ..	27
<b>No. 8.—SUMMARY STATEMENT</b> of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, on the PREMISES of the RAILWAY COMPANIES; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	28
<b>No. 9.—NUMBER</b> of SERVANTS of COMPANIES and of CONTRACTORS reported by the several RAILWAY COMPANIES to the BOARD of TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES ... ..	30
<b>No. 10.—STATEMENT</b> showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES; and also the Total Number of Persons employed in each Class of Service... ..	36
<b>No. 11.—SUMMARY STATEMENT</b> of the NUMBER of ACCIDENTS to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., reported to the BOARD of TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM, classified according to the NATURE of the ACCIDENT; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	37
<b>No. 12.—NUMBER</b> of ACCIDENTS of each Class to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., reported to the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM ... ..	38
<b>REPORTS ON ACCIDENTS INQUIRED INTO—</b>	
A. REPORTS by INSPECTING OFFICERS ... ..	43
B. REPORTS by ASSISTANT INSPECTING OFFICERS ... ..	65
C. REPORTS by SUB-INSPECTORS ... ..	90



**Summary of Accidents and Casualties which have been reported to the Board of Trade as having occurred upon the Railways in the United Kingdom during the Six Months ending 30th June 1902.**

**I.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c.**

Accidents to trains, rolling-stock, permanent-way, &c., caused the death of 5 persons and injury to 408 persons, viz. :—

	Total for 6 months ending 30th June 1902.		Total for the corresponding period in 1901.	
	Killed.	Injured.	Killed.	Injured.
Passengers ... ..	5	359	—	172
Servants of Companies ... ..	—	49	6	77
Other Persons ... ..	—	—	2	2
Total ... ..	5	408	8	251

Of the 5 persons killed and 408 injured, 1 passenger was killed and 37 passengers and 10 servants were injured in collisions between passenger trains or parts of passenger trains ; 22 passengers and 9 servants were injured in collisions between passenger trains and goods or mineral trains, light engines, or other moving vehicles ; 10 servants were injured in collisions between goods trains, light engines, or other moving vehicles ; 16 passengers and 1 servant were injured in collisions between trains and vehicles standing foul of the line ; 49 passengers and 1 servant were injured in collisions between trains and buffer-stops or vehicles at rest, caused by trains running into stations at too high a speed ; 8 passengers and 5 servants were injured by collisions between trains and buffer-stops, &c., from causes other than the above ; 25 passengers and 1 servant were injured through passenger trains or parts of passenger trains leaving the rails ; 5 servants were injured through goods trains or parts of goods trains, light engines, &c., leaving the rails ; 1 servant was injured by a collision between a train and crossing-gates ; 4 passengers were killed and 196 passengers and 6 servants were injured by accidents arising from the failure of rolling stock (wheels, tyres, axles, &c.) ; and 6 passengers were killed in other accidents to trains, &c.

Altogether, including accidents in which no personal injury was sustained, there were reported during the six months, 12 collisions between passenger trains or parts of passenger trains ; 15 collisions between passenger trains and goods or mineral trains, light engines, &c. ; 9 collisions between goods trains, parts of goods trains, light engines, &c. ; 7 collisions between trains and vehicles standing foul of the line ; 18 collisions between trains and buffer-stops, &c., of which 11 were caused by trains running into stations or sidings at too high a speed, and 7 were due to other causes ; 1 case of a train coming in contact with a projection from another train on a parallel line ; 28 cases of passenger trains or parts of passenger trains leaving the rails ; 4 cases of goods, &c., trains or parts of goods trains, leaving the rails ; 78 cases of trains running through gates at level-crossings or into other obstructions\* ; 4 cases of fires in trains ; and 2 cases of miscellaneous accidents to trains.

\* During the six months, 7 horses, 13 beasts and cows, 29 sheep, 3 dogs, 2 deer, and 1 pig were run over and killed ; and 1 horse, 1 beast, 2 sheep, and 2 dogs were injured.

In addition to the above the following accidents to, and failures of, rolling-stock and permanent-way were reported, viz. :—2 cases of the failure of the machinery, springs, &c., of engines ; 117 failures of tyres ; 2 failures of wheels ; 74 failures of axles ; 9 failures of couplings ; 1 failure of a bridge ; 171 failures of rails ; 4 cases of slips in cuttings or embankments ; 7 cases of fires at stations, &c. ; and 1 miscellaneous accident.

Of the 117 tyres which failed, 9 were engine-tyres, 1 was a coach-tyre, 9 were van-tyres, and 98 were waggon-tyres ; of the waggons, 64 belonged to owners other than the Railway Companies ; 64 tyres were made of iron and 53 of steel ; 105 of the tyres were fastened to the wheels by bolts, or rivets, 7 of which left the wheels when they failed ; and 12 by other methods ; 14 tyres broke at rivet-holes, 40 in the solid, and 63 split longitudinally or bulged.

Of the 74 axles which failed, 38 were engine axles, viz., 28 crank or driving, and 10 leading or trailing ; 6 were tender axles ; 5 were coach axles ; and 25 were waggon axles ; of the waggons, 11 belonged to owners other than the Railway Companies. Of the 28 crank or driving axles, 5 were made of iron and 23 of steel. The average mileage of the 5 crank or driving axles made of iron was 367,919 miles, and of 22 of the crank or driving axles made of steel 237,483 miles.

Of the 171 rails which broke, 30 were double-headed, 115 were single-headed, 1 was a bridge rail, and 25 were Vignoles' rails ; of the double-headed rails, 14 had been turned. - All of these rails were made of steel.

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## II.—ACCIDENTS TO PASSENGERS FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., INCLUDING ACCIDENTS FROM THEIR OWN WANT OF CAUTION OR MISCONDUCT ; ACCIDENTS TO PERSONS PASSING OVER LEVEL-CROSSINGS ; TRESPASSERS ; AND OTHERS.

Of the 306 persons killed and 918 injured under this heading, 58 of the killed and 787 of the injured were passengers. Of these, 16 were killed and 79 injured by falling between carriages and platforms, viz., 9 killed and 39 injured when getting into, and 7 killed and 40 injured when alighting from, trains ; 4 were killed and 445 injured by falling on to platforms, ballast, &c., viz., 57 injured when getting into, and 4 killed and 388 injured when alighting from, trains ; 3 were killed and 2 injured by falling off platforms and being struck or run over by trains ; 15 were killed and 5 injured whilst passing over the line at stations, viz., 8 killed and 4 injured at stations where there is a subway or footbridge, and 7 killed and 1 injured at stations where there is neither a subway nor footbridge ; 153 were injured by the closing of carriage doors ; 13 were killed and 29 injured by falling out of carriages during the travelling of trains ; and 7 were killed and 74 injured from other causes. 24 persons were killed and 7 injured whilst passing over railways at level-crossings, viz., 9 killed and 3 injured at public level-crossings, 11 killed and 3 injured at occupation-crossings, and 4 killed and 1 injured at foot-crossings. 133 persons were killed and 60 injured when trespassing on railways ; 73 persons committed suicide on railways, and 8 persons were injured while apparently attempting to commit suicide ; 10 persons were killed and 37 injured while on business at stations and sidings ; and of other persons not specifically classed, 8 were killed and 19 injured.

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## III.—ACCIDENTS TO SERVANTS IN THE EMPLOY OF RAILWAY COMPANIES OR CONTRACTORS, CAUSED BY THE TRAVELLING OF TRAINS OR THE MOVEMENT OF VEHICLES USED EXCLUSIVELY UPON RAILWAYS.

During the six months there were 227 servants of companies or contractors reported as having been killed and 1,762 injured, in addition to those included in Division I. 9 were killed and 243 injured whilst coupling or uncoupling vehicles ; 6 were injured



whilst walking on the line ; 26 injured by being trampled on or kicked by horses whilst engaged in railway work ; 2 injured through being struck by articles thrown from passing trains ; 336 injured by the falling of rails, sleepers, &c., while at work on the line ; 5 killed and 538 injured in other ways when at work on the line or in sidings ; and 2 killed and 945 injured from various other causes. Of persons transacting business on the companies' premises, 6 were killed and 157 injured ; and of other persons not coming within the above classifications, 6 were killed and 47 injured ; making a total in this class of accidents of 35 persons killed and 5,427 injured.

Thus the total number of personal accidents reported to the Board of Trade by the several Railway Companies during the six months amounts to 573 persons killed and 8,515 injured.

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### NOTE.

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All accidents which occur in the working of railways or on railway premises to persons other than servants of the companies (described in the following Tables as "Passengers" and "Other Persons") are required to be reported to the Board of Trade, however slight the injuries may be; but, as regards servants of the companies, only those accidents which prevent the servant injured from being employed for five hours on his ordinary work on any one of the three working days next after the accident are reported.

The following Tables therefore show the total number of persons other than servants of the companies injured from accidents arising in the working of railways or on railway premises, but only the number of servants whose injuries prevented them working for five hours on any one of the three working days next after the accident.

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TABLE No. 1.

**Summary Statement of the Number of Passengers, Servants of the Companies and of Contractors, and other Persons reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, during the Six Months ending 30th June 1902; with corresponding figures for the UNITED KINGDOM for the Six Months ending 30th June, 1901.**

	1902.								1901.	
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.		UNITED KINGDOM.		UNITED KINGDOM.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	5	314	...	42	...	3	5	359	...	172
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	47	728	10	53	1	6	58	787	55	674
<b>TOTAL OF PASSENGERS ...</b>	<b>52</b>	<b>1,042</b>	<b>10</b>	<b>95</b>	<b>1</b>	<b>9</b>	<b>63</b>	<b>1,146</b>	<b>55</b>	<b>846</b>
<b>SERVANTS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	...	39	...	7	..	3	...	49	6	77
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	179	1,530	40	203	8	29	227	1,762	219	1,988
<b>TOTAL OF SERVANTS ...</b>	<b>179</b>	<b>1,569</b>	<b>40</b>	<b>210</b>	<b>8</b>	<b>32</b>	<b>227</b>	<b>1,811</b>	<b>225</b>	<b>2,065</b>
<b>OTHER PERSONS :—</b>										
In accidents to trains. (See Table No. 2.)	...	...	...	...	...	...	...	...	2	2
While passing over railways at level crossings. (See Table No. 3.)	20	5	1	2	3	...	24	7	25	8
While trespassing on line. (See Table No. 3.)	93	36	31	20	9	4	153	60	139	72
Suicides and attempted suicides. (See Table No. 3.)	61	8	10	...	2	...	73	8	68	11
On business at stations and sidings. (See Table No. 3.)	10	31	...	5	...	1	10	37	11	59
Miscellaneous (not included above). (See Table No. 3.)	6	14	2	4	...	1	8	19	9	9
<b>TOTAL OF OTHER PERSONS</b>	<b>190</b>	<b>94</b>	<b>44</b>	<b>31</b>	<b>14</b>	<b>6</b>	<b>248</b>	<b>131</b>	<b>254</b>	<b>161</b>
<b>GRAND TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.</b>	<b>421</b>	<b>2,705</b>	<b>94</b>	<b>336</b>	<b>23</b>	<b>47</b>	<b>538</b>	<b>3,088</b>	<b>534</b>	<b>3,072</b>

*Note.*—For the number of persons killed or injured on railway premises otherwise than through accidents to trains or the movement of railway vehicles, see Tables 8, 9, and 10.

TABLE No. 2.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, in the different CLASSES of

CLASS OF ACCIDENT,	NUMBER OF PASSENGERS.								NUMBER OF SERVANTS.							
	England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
1. Collisions between passenger trains or parts of passenger trains.	1	37	...	...	...	...	1	37	...	9	...	1	...	...	...	10
2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.	...	21	...	1	...	...	...	22	...	8	...	1	...	...	...	9
3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.	...	...	...	...	...	...	...	...	...	8	...	2	...	...	...	10
4. Collisions between trains and vehicles standing foul of the line.	...	4	...	12	...	...	...	16	...	...	...	1	...	...	...	1
5. Collisions between trains and buffer-stops, or vehicles at rest:																
(a) From trains running into stations at too high a speed.	...	46	...	...	...	3	...	49	...	1	...	...	...	...	...	1
(b) From other causes ...	...	8	...	...	...	...	...	8	...	4	...	1	...	...	...	5
6. Trains coming in contact with projections from other trains running on parallel lines.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7. Passenger trains or parts of passenger trains leaving the rails.	...	2	...	23	...	...	...	25	...	...	...	...	...	1	...	1
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	...	...	...	...	...	...	...	...	...	4	...	1	...	...	...	5
9. Trains running through gates at level-crossings, or into other obstacles.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
10. The bursting of boilers or tubes, &c., of engines.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines).	4	196	...	...	...	...	4	196	...	4	...	...	...	2	...	6
12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13. Fires in trains ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14. Other accidents ...	...	...	...	6	...	...	...	6	...	...	...	...	...	...	...	...
<b>TOTAL</b> ...	5	314	...	42	...	3	5	359	...	39	...	7	...	3	...	49

N.B.—The Board of Trade state the cause of accident as returned by the Companies but do not guarantee





## NUMBER OF PERSONS KILLED OR INJURED FROM THE RUNNING

TABLE No. 3.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS or by the

	ENGLAND AND WALES.		SCOTLAND.	
	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>				
1. From falling between trains and platforms :				
(1) When entering trains ... ..	6	34	3	3
(2) When alighting from trains ... ..	5	34	2	6
2. From falling on to the platform, ballast, &c. :				
(1) When entering trains ... ..	...	56	...	1
(2) When alighting from trains ... ..	3	371	...	17
3. From falling off platforms and being struck or run over by trains.	2	2	1	...
4. Whilst crossing the line at stations :				
(1) Where there is either a subway or footbridge	7	4	1	...
(2) Where there is neither a subway nor footbridge	7	...	...	...
5. By the closing of carriage doors ... ..	...	135	...	18
6. From falling out of carriages during the running of trains.	10	24	3	5
7. By other accidents ... ..	7	68	...	3
<b>TOTAL OF PASSENGERS</b> ... ..	<b>47</b>	<b>728</b>	<b>10</b>	<b>53</b>
<b>SERVANTS :—</b>				
By accidents occurring during shunting operations, viz :				
1. Whilst coupling or uncoupling vehicles ...	5	211	2	27
2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines.	...	5	...	1
3. While passing over, under, or standing on buffers.	...	5	1	4
4. When getting on or off, or falling off engines, waggons, &c.	4	76	1	9
5. Whilst braking, spragging, or chocking wheels	6	150	...	18
6. Whilst attending to ground-points ... ..	...	30	1	7
7. Whilst moving vehicles by capstans, turntables, props, levers, &c.	4	162	1	12
8. By other accidents not included in the preceding.	13	192	1	19
9. From falling off trains, engines, &c., in motion ...	1	20	2	7
10. When getting on or off engines, vans, &c., during the running of trains.	2	106	...	14
11. By coming in contact with over-bridges or erections on the sides of the line.	5	30	1	2
12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion.	1	143	...	14
13. Whilst working on the permanent-way, sidings, &c.	32	47	10	14
14. Whilst attending to gates at level-crossings ...	2	...	1	...
15. Whilst walking, crossing, or standing on the line on duty :				
(1) At stations ... ..	40	82	7	12
(2) At other parts of the line ... ..	22	14	1	7
16. From being caught between vehicles ... ..	16	36	3	7
17. From falling or being caught between trains and platforms, walls, &c.	1	23	1	7
18. Whilst walking, &c., along the line to or from work	10	13	2	3
19. Miscellaneous ... ..	15	185	5	19
<b>TOTAL OF SERVANTS</b> ... ..	<b>179</b>	<b>1530</b>	<b>40</b>	<b>203</b>
<b>OTHER PERSONS :—</b>				
1. Whilst passing over railways at level-crossings ...	20	5	1	2
2. Whilst trespassing on line ... ..	93	36	31	20
3. Suicides and attempted suicides ... ..	61	8	10	...
4. On business at stations and sidings ... ..	10	31	...	5
5. Miscellaneous (not included above) ... ..	6	14	2	4
<b>TOTAL OF OTHER PERSONS</b> ... ..	<b>190</b>	<b>94</b>	<b>44</b>	<b>31</b>
<b>GRAND TOTAL</b> ... ..	<b>416</b>	<b>2,352</b>	<b>94</b>	<b>287</b>

N.B.—The Board of Trade state the cause of the accident as returned by the Companies, but do not

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 3.

reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED  
MOVEMENT of RAILWAY VEHICLES during the Six Months ending 30th June, 1902.

IRELAND.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
...	2	9	39	<b>PASSENGERS :—</b>  1. From falling between trains and platforms : (1) When entering trains. (2) When alighting from trains. 2. From falling on to the platform, ballast, &c. : (1) When entering trains. (2) When alighting from trains. 3. From falling off platforms and being struck or run over by trains. 4. Whilst crossing the line at stations : (1) Where there is either a subway or footbridge. (2) Where there is neither a subway nor footbridge. 5. By the closing of carriage doors. 6. From falling out of carriages during the running of trains. 7. By other accidents.
...	...	7	40	
...	...	...	57	
1	...	4	388	
...	...	3	2	
...	...	8	4	
...	1	7	1	
...	...	...	153	
...	...	13	29	
...	3	7	74	
1	6	58	787	
				<b>TOTAL OF PASSENGERS.</b>
				<b>SERVANTS :—</b>
				By accidents occurring during shunting operations, viz. :
2	5	9	243	1. Whilst coupling or uncoupling vehicles.
...	...	...	6	2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines.
...	...	1	9	3. While passing over, under, or standing on buffers.
...	...	5	85	4. When getting on or off, or falling off engines, waggons, &c.
...	1	6	169	5. Whilst braking, spragging, or chocking wheels.
...	1	1	38	6. Whilst attending to ground-points.
...	8	5	182	7. Whilst moving vehicles by capstans, turntables, props, levers, &c.
1	4	15	215	8. By other accidents not included in the preceding.
...	...	3	27	9. From falling off trains, engines, &c., in motion.
...	2	2	122	10. When getting on or off engines, vans, &c., during the running of trains.
...	4	6	36	11. By coming in contact with over-bridges or erections on the sides of the line.
...	...	1	157	12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion.
...	...	42	61	13. Whilst working on the permanent-way, sidings, &c.
...	...	3	..	14. Whilst attending to gates at level-crossings.
2	1	49	95	15. Whilst walking, crossing, or standing on the line on duty :
...	...	23	21	(1) At stations.
...	...	19	43	(2) At other parts of the line.
1	...	8	30	16. From being caught between vehicles.
1	...	13	16	17. From falling or being caught between trains and platforms, walls, &c.
1	3	21	207	18. Whilst walking, &c., along the line to or from work.
8	29	227	1,762	19. Miscellaneous.
				<b>TOTAL OF SERVANTS.</b>
				<b>OTHER PERSONS :—</b>
3	...	24	7	1. Whilst passing over railways at level-crossings.
9	4	133	60	2. Whilst trespassing on line.
2	...	73	8	3. Suicides and attempted suicides.
...	1	10	37	4. On business at stations and sidings.
...	1	8	19	5. Miscellaneous (not included above).
14	6	248	131	<b>TOTAL OF OTHER PERSONS.</b>
23	41	538	2,680	<b>GRAND TOTAL.</b>

guarantee or otherwise adopt the statement, except in cases where an official inquiry has been held.

TABLE No. 4.

NUMBER of PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the

NAME OF COMPANY.	1		2		3		4		5				6		7		8	
	Collisions between Passenger Trains or Parts of Passenger Trains.		Collisions between Passenger Trains and Goods or Mineral Trains, Light-Engines, &c.		Collisions between Goods Trains or Parts of Goods Trains, Light-Engines, &c.		Collisions between Trains and Vehicles standing foul of the Line.		Collisions between Trains and Buffer-Stops, or Vehicles at rest.				Trains coming in Contact with Projections from other Trains running on Parallel Lines.		Passenger Trains or Parts of Passenger Trains leaving the Rails.		Goods Trains or Parts of Goods Trains, Light-Engines, &c. leaving the Rails.	
	K.*	L.†	K.	L.	K.	L.	K.	L.	(a.) From Trains running into Stations at too high a speed.		(b.) From other Causes.		K.		K.		K.	
ENGLAND AND WALES.																		
Cambrian ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Great Eastern ... ..	...	1	...	7	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Great Northern ... ..	...	15	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Great Western . . . .	...	...	...	12	...	...	...	...	...	3	...	...	...	...	...	...	...	...
Lancashire and Yorkshire...	...	4	...	...	...	...	...	4	...	35	...	2	...	...	...	...	...	...
London and North-Western	1	14	...	4	...	1	...	...	...	...	...	1	...	...	...	...	...	4
London and South-Western	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
London, Brighton, and South Coast.	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...
Midland ... ..	...	...	...	...	...	2	...	...	...	...	...	4	...	...	...	...	...	...
North-Eastern ... ..	...	2	...	2	...	3	...	...	...	1	...	...	...	...	...	1	...	...
North-Eastern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...
Sheffield and Midland Joint	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South-Eastern and Chatham	...	9	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES ...	1	46	...	29	...	8	...	4	...	47	...	12	...	...	...	2	...	4
SCOTLAND.																		
Caledonian ... ..	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	1
Dundee and Abroath Joint	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	23	...	...
Glasgow District Subway...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
North British ... ..	...	...	...	1	...	1	...	12	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	...	1	...	2	...	2	...	13	...	...	...	1	...	...	...	23	...	1
IRELAND.																		
Belfast and County Down	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...
Great Southern and Western	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Clare ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
TOTAL, IRELAND ...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	1	...	...
TOTAL, UNITED KING- DOM ... ..	1	47	...	31	...	10	...	17	...	50	...	13	...	...	...	26	...	5

NOTE.—In the above Table the persons killed and injured from accidents are entered against the Company on whose \* Killed. † Injured.



## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several  
during the Six Months

## A. PASSENGERS.

NAME OF COMPANY.	1				2				3		4				5		6		7		Total.	
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.		Whilst crossing the line at Stations.				By the closing of Carriage Doors.		From falling out of Carriages during the running of Trains.		By other Accidents.			
	(a)		(b)		(a)		(b)				(a)		(b)									
	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.								
K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	
ENGLAND AND WALES.																						
Brecon and Merthyr	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Cambrian	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	
Carlisle Joint Station	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	
East London Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	
Furness	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1	...	...	...	3	
Great Central	...	2	...	...	...	1	2	...	...	1	...	1	...	...	6	...	1	1	1	4	12	
Great Eastern	...	1	8	...	3	...	17	...	26	1	1	2	...	1	...	10	...	2	...	8	75	
Great Northern	...	1	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	1	4	
Great Western	...	1	...	1	...	1	21	...	...	...	...	1	...	...	10	...	4	...	1	1	39	
Lancashire and Yorkshire	...	...	...	2	...	...	10	...	...	...	1	...	...	...	9	2	1	1	1	3	24	
Lancashire and Yorkshire and London and North-Western Joint.	...	...	...	...	...	1	3	...	...	...	...	...	...	...	2	...	...	1	...	2	5	
Lancashire, Derbyshire, and East Coast.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	
London and North-Western	...	3	1	3	...	3	52	...	...	2	...	1	...	...	37	...	3	1	19	5	120	
London and North-Western and Great Western Joint.	...	...	...	...	1	...	8	...	...	...	...	...	...	...	4	1	1	...	1	1	15	
London and North-Western and Midland Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
London and South Western	...	2	1	2	...	8	76	1	...	...	...	1	...	...	4	...	1	...	5	3	98	
London and South-Western and London, Brighton and South Coast Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	
London, Brighton, and South Coast.	...	...	1	3	...	1	11	...	...	...	...	...	...	...	2	2	...	...	5	4	21	
London, Tilbury, and South-end.	1	...	1	...	1	...	11	...	...	...	...	...	...	...	...	...	1	...	1	2	14	
Manchester, South Junction, and Altrincham.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	
Metropolitan	...	2	...	1	...	...	3	...	...	...	...	...	...	...	1	1	1	1	1	2	9	
Metropolitan and Great Western Joint.	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
Metropolitan District	...	1	...	4	...	1	4	...	...	...	...	...	...	...	...	...	...	...	...	1	9	
Midland	...	1	2	...	2	...	4	...	18	...	...	...	...	...	11	1	1	...	9	2	47	
Midland and Great-Western Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	2	
North-Eastern	...	5	...	4	...	8	41	...	...	...	3	...	...	...	22	1	2	1	8	2	96	
North Eastern and London and North-Western Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
North London	...	1	...	4	...	10	27	...	...	1	...	...	...	...	6	...	...	...	5	1	53	
North Wales and Liverpool	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	

\* Killed.

NOTE.—In the above Table the persons killed and injured  
† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES:

TABLE No. 5.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th June, 1902.

## A. PASSENGERS.

NAME OF COMPANY.	1				2				3				4				5				6				7				Total.				
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.				Whilst crossing the Line at Stations.				By the closing of Carriage Doors.				From falling out of Carriages during the running of Trains.				By other Accidents								
	(a)		(b)		(a)		(b)				(a)		(b)																				
	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.			
K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L		
ENGLAND AND WALES— cont.																																	
Sheffield and Midland Joint	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1			
South-Eastern and Chatham	1	2	1	4	...	1	...	34	...	...	1	...	1	...	...	4	1	2	...	2	5	49											
South-Eastern and Chatham and London, Brighton, and South Coast Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	2											
South Shields, Marsden, and Whitburn.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1											
Tottenham and Forest Gate Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1											
Tottenham and Hampstead Joint.	...	1	...	1	...	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	5											
Waterloo and City ...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4											
West London Extension ...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	2	...	...	...	...	...	7											
TOTAL, ENGLAND AND WALES ...	6	34	5	34	...	56	3	371	2	2	7	4	7	...	...	135	10	24	7	68	47	728											
SCOTLAND.																																	
Caledonian ...	2	1	...	2	...	...	6	1	...	...	...	...	...	...	...	8	2	...	...	1	5	18											
Glasgow and Paisley Joint...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	2	...	...	...	...	...	4											
Glasgow and South-Western	...	...	2	2	...	...	2	...	...	...	...	...	...	...	...	1	...	1	...	...	...	6											
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	3											
Glasgow District Subway ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1											
Highland ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2											
North British ...	1	...	...	1	...	...	7	...	...	1	...	...	...	...	...	6	1	3	...	2	3	19											
TOTAL, SCOTLAND ...	3	3	2	6	...	1	...	17	1	...	1	...	...	...	...	18	3	5	...	3	10	53											
IRELAND.																																	
Belfast and Northern Counties.	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2											
Cork and Macroom Direct ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1											
Donegal ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1											
Great Southern and Western	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2											
TOTAL, IRELAND ...	...	2	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	3											
TOTAL, UNITED KINGDOM...	9	39	7	40	...	57	4	388	3	2	8	4	7	1	...	153	13	29	7	74	58	787											

are entered against the Company on whose line the injury was received.

\* Killed.

† Injured.

NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Six Months

B. SERVANTS of COMPANIES and CONTRACTORS.

NAME OF COMPANY	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		9.		10.	
	Whilst coupling or uncoupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon, Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or chocking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.		By other Accidents not included in the preceding.		By falling on Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
ENGLAND AND WALES.																				
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ...	1	2	...	...	...	1	...	3	...	3	...	1	...	...	...	2	...	...	...	1
Brecon and Merthyr ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Cambrian ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Carlisle Joint Station ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Central London ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	...	2	...	...	...	...	...	1	1	1	...	...	...	1	...	2	...	...	...	...
Cleator and Workington Junction ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
East and West Yorkshire Union ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Great Central ...	...	5	...	...	...	...	...	2	...	6	...	4	...	2	...	9	...	...	...	5
Great Eastern ...	1	12	...	...	...	...	...	4	...	5	...	1	...	15	...	9	...	2	...	7
Great Northern ...	...	17	...	1	...	...	...	5	1	13	...	2	1	9	2	9	...	1	...	11
Great Northern and Great Eastern Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Great Western ...	...	20	...	...	...	...	1	8	...	20	...	2	1	15	...	23	...	1	1	14
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Lancashire and Yorkshire ...	1	16	...	...	...	...	1	2	1	12	...	3	...	23	3	16	...	2	...	4
Lancashire and Yorkshire and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	1	...	1	...	6	...	1	...	...	...	...
Lancashire, Derbyshire and East Coast.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and North-Western ...	1	56	...	1	...	...	1	12	2	43	...	7	1	43	3	58	...	2	1	17

\* Killed.

† Injured.





NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Six Months

B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	Whilst coupling or un-coupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or checking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turn-ables, Props, Levers, &c.		By other Accidents not included in the preceding.		K.	I.	K.	I.
ENGLAND AND WALES—cont.	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
London and North-Western and Great Western Joint.	...	...	...	...	...	...	2	...	...	...	1	...	...	...	1	...	...	...	...	...
London and North-Western and Midland Joint.	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western ...	...	13	...	...	1	...	6	...	4	...	...	...	5	...	6	...	1	...	5	...
London, Brighton, and South Coast	1	6	...	...	...	1	1	1	5	...	...	...	3	...	3	...	2	...	1	...
London, Tilbury, and Southend ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Manchester and Milford ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Manchester Ship Canal ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
Metropolitan ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...
Metropolitan District ...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Midland ...	...	23	...	...	1	...	7	...	10	...	4	...	21	1	20	...	3	...	21	...
Midland and Great Northern Joint	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1	...	...	...	...	1
Midland and Great Western Joint ...	...	2	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Midland and Lancashire and York-shire Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Midland and South-Western Junction	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Neath and Brecon ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Normanton Joint Station ...	...	...	...	...	...	...	...	...	...	...	...	...	5	...	1	...	...	...	...	...
North-Eastern ...	...	18	...	2	...	2	...	9	...	14	...	2	1	10	3	14	...	3	...	10
North London ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	1	...	...	3
North Staffordshire ...	...	1	...	...	...	...	2	...	2	...	...	...	...	...	1	...	...	...	...	...
Port Talbot ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...
Rhondda and Swansea Bay ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Rhymney ...	...	2	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Severn and Wye Joint...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued*.RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th June 1902—*continued*.B. SERVANTS of COMPANIES and CONTRACTORS—*continued*.

11.		12.		13.		14.		15.				16.		17.		18.		19.			
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.		TOTAL.	
								(a.) At Stations.		(b.) At other Parts of the Line.											
K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	2	...	8
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	3	2	2	...	...	4	2	...	...	2	2	...	1	1	1	1	3	10	55
...	...	...	1	3	3	...	...	3	6	...	...	2	...	...	2	...	...	...	2	11	35
...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	3	2
...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	3	1	5
...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	8
...	3	...	29	6	3	...	...	6	10	2	4	1	5	...	1	1	1	3	1	20	187
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
..	3	...	12	3	2	...	...	5	8	1	...	...	2	...	2	...	2	2	24	15	139
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	9
...	...	...	...	...	...	...	...	2	1	...	...	...	1	...	...	1	...	...	2	5	10
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1

\* Killed.

† Injured.

NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Six Months

B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
ENGLAND AND WALES—cont.																				
Sheffield and Midland Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Somerset and Dorset Joint ...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
South-Eastern and Chatham...	...	7	...	...	...	...	...	5	...	1	...	1	...	1	1	1	...	1	...	3
Taff Vale ...	...	1	...	...	...	...	...	1	...	5	...	...	...	...	...	7	...	...	...	...
Tottenham and Hampstead Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Railway Clearing House ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES ...	5	211	...	5	...	5	4	76	6	150	...	30	4	162	13	192	1	20	2	106
SCOTLAND.																				
Caledonian ...	...	10	...	1	1	2	...	7	...	9	...	4	...	3	...	4	1	4	...	1
Dumbarton and Balloch Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dundee and Arbroath Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Glasgow and Paisley Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western ...	1	2	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	...
Great North of Scotland ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...
Highland ...	...	2	...	...	...	...	1	...	...	1	...	...	...	1	...	...	...	1	...	2
North British ...	1	13	...	...	...	2	...	2	...	8	1	2	...	8	1	13	...	1	...	11
Railway Clearing House ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	2	27	...	1	1	4	1	9	...	18	1	7	1	12	1	19	2	7	...	14
IRELAND.																				
Belfast and County Down ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties ...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	1	...	...	...	...	1
Cavan and Leitrim ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clogher Valley ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Cork, Bandon and South Coast ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern ...	1	...	...	...	...	...	...	...	...	1	...	...	...	3	...	2	...	...	...	...
Great Southern and Western ...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	1
Midland Great Western ...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...
TOTAL IRELAND ...	2	5	...	...	...	...	...	...	...	1	...	1	...	8	1	4	...	...	...	2
TOTAL, UNITED KINGDOM ...	9	243	...	6	1	9	5	85	6	169	1	38	5	182	15	215	3	27	2	122

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued.*RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th June 1902—*continued.*B. SERVANTS of COMPANIES and CONTRACTORS—*continued.*

11.		12.		13.		14.		15.				16.		17.		18.		19.		TOTAL.	
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.			
								(a.) At Stations.		(b.) At other Parts of the Line.											
K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	1	1	4
1	4	...	2	2	3	1	...	...	5	1	...	1	1	1	4	1	1	...	9	9	49
...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	22	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...	
5	30	1	143	32	47	2	...	40	82	22	14	16	36	1	23	10	13	15	185	179	1,530
1	1	...	2	3	9	...	...	1	3	...	5	...	2	...	2	...	2	2	9	9	80
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
...	...	...	1	1	1	...	...	3	1	...	...	...	1	1	...	...	...	2	6	11	
...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	1	4	
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	1	9	
...	1	...	10	5	4	1	...	2	5	1	2	3	4	...	3	2	1	3	8	20	98
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	
1	2	...	14	10	14	1	...	7	12	1	7	3	7	1	7	2	3	5	19	40	203
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	5	
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1	
...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	2	7	
...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	3	8	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6
...	4	...	...	...	...	...	...	2	1	...	...	...	...	1	...	1	...	1	3	8	29
6	36	1	157	42	61	3	...	49	95	23	21	19	43	3	30	13	16	21	207	227	1,762

**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE NO. 5—continued.**

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Six Months ending 30th June 1902—*continued.*

**C. OTHER PERSONS.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres- passers.		Suicides and attempted Suicides.		Persons on Business at Stations and Sidings.		Miscel- laneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES.																		
Burry Port and Gwendraeth Valley.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...
Cambrian ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1	1
Central London ... ..	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	2	...
Cheshire Lines ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	2	...
City and South London ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Furness ... ..	...	...	...	...	...	...	...	...	1	1	...	...	1	...	...	...	2	1
Great Central ... ..	...	...	...	...	...	...	...	...	5	4	1	...	...	2	...	1	6	7
Great Eastern ... ..	...	...	1	...	...	...	1	...	9	1	6	5	2	2	1	1	19	9
Great Northern ... ..	...	...	...	...	...	...	...	...	5	1	6	...	...	1	...	...	11	2
Great Western ... ..	...	...	4	...	3	1	7	1	19	6	4	..	2	5	1	3	33	15
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Isle of Wight ... ..	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Lancashire and Yorkshire	...	...	2	...	...	...	2	...	6	2	...	...	...	2	...	1	8	5
London and India Docks ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
London and North-Western	1	...	...	...	1	...	2	...	14	5	6	...	1	9	...	1	23	15
London and South-Western	1	...	...	...	...	...	1	...	2	1	6	...	1	2	1	1	11	4
London and South-Western and London, Brighton, and South Coast Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
London, Brighton, and South Coast.	...	...	...	...	...	...	...	...	2	1	5	1	...	2	...	1	7	5
London, Tilbury, and Southend.	...	...	...	...	...	...	...	...	1	...	1	...	...	...	1	...	3	...
Manchester, Louth Junction, and Altrincham.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Metropolitan ... ..	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Metropolitan District ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Midland ... ..	1	1	...	...	...	...	1	1	6	1	5	...	1	2	1	1	14	5
Midland and Great Western Joint.	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	...	2	1
Neath and Brecon ... ..	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...
North-Eastern ... ..	3	1	1	...	...	...	4	1	15	7	1	...	...	2	...	1	20	11
North London ... ..	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	2	...
North Staffordshire ... ..	...	...	...	...	...	...	...	...	1	1	1	...	...	...	...	...	2	1
Rhymney and Great Western Joint.	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	1	1
Sheffield and Midland Joint	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...

\* Killed.

† Injured.

**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE No. 5—continued.**

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Six Months ending 30th June 1902—*continued.*

**C. OTHER PERSONS—continued.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres-passers.		Suicides and attempted Suicides.		Persons on Business at Sidings and Stations.		Miscellaneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES—cont.																		
Somerset and Dorset Joint	...	..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
South-Eastern and Chatham.	2	...	...	...	...	...	2	...	2	1	7	...	1	1	...	1	12	3.
Taff Vale ... ..	...	1	...	1	...	...	2	...	...	...	1	...	...	...	...	...	1	?
Tottenham and Hampstead Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
TOTAL, ENGLAND AND WALES ... ..	8	3	8	1	4	1	20	5	93	36	61	8	10	31	6	14	190	94
SCOTLAND.																		
Caledonian ... ..	...	...	...	...	...	...	...	...	15	12	2	...	...	1	1	1	18	14
Dundee and Arbroath Joint	...	...	1	1	...	...	1	1	1	...	...	...	...	...	...	...	2	1
Glasgow and South-Western	...	...	...	...	...	...	...	...	1	1	...	...	...	...	1	...	2	1
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Great North of Scotland ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Highland ... ..	...	...	...	1	...	...	...	1	1	...	...	...	...	...	...	...	1	1
North British ... ..	...	...	...	...	...	...	...	...	12	7	6	...	...	4	...	3	18	14
Perth General Station ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
TOTAL, SCOTLAND ...	...	...	1	2	...	...	1	2	31	20	10	...	...	5	2	4	44	31
IRELAND.																		
Belfast and County Down	...	...	1	...	...	...	1	...	...	...	1	...	...	...	...	...	2	...
Belfast and Northern Counties.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Donegal ... ..	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Great Northern ... ..	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	2	1
Great Southern and Western	...	...	1	...	...	...	1	...	4	1	...	...	...	1	...	1	5	3
Londonderry and Lough Swilly.	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	2	...
Midland Great Western ...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	2	1
TOTAL, IRELAND ...	1	...	2	...	...	...	3	...	9	4	2	...	...	1	...	1	14	6
TOTAL, UNITED KINGDOM ... ..	9	3	11	3	4	1	24	7	133	60	73	8	10	37	8	19	248	131

\* Killed.

† Injured.

### NATURE OF INJURIES TO PERSONS FROM ACCIDENTS TO TRAINS AND FROM THE MOVEMENT OF RAILWAY VEHICLES.

**TABLE No. 6.**

**NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES during the Six Months ending 30th June 1902, classified according to the NATURE of the INJURIES; with figures for the corresponding period of 1901.**

				NATURE OF INJURIES.														Total Injured				
				Injuries resulting in Loss of				Fractures of				Dislocations.	Internal Injuries.	Contusions of		Scalds or Burns.	Sprains.		Cuts or Lacerations.	Shock to System.	Miscellaneous Injuries.	
				Fatal	Logs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
				1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.		
<b>Passengers:</b>																						
1902	...	..	...	63	7	1	...	4	24	2	1	7	9	82	195	...	25	141	79	569	1,146	
1901	...	..	...	55	4	1	1	2	16	8	7	5	7	62	179	1	20	144	86	303	816	
<b>Servants of the Companies and Contractors:</b>																						
1902	...	...	...	227	26	8	7	5	49	41	9	14	34	242	479	40	211	170	20	456	1,811	
1901	...	...	...	225	44	10	15	8	67	44	20	20	54	197	507	53	256	193	13	564	2,065	
(For details, see Table No. 7.)																						
<b>Other Persons:</b>																						
Persons having business at stations				1902	10	1	...	1	...	3	1	2	1	1	3	13	...	...	2	2	7	37
				1901	11	1	3	1	...	2	1	1	...	...	5	14	...	1	7	2	21	59
Trespassers				1902	133	6	7	1	...	7	3	2	...	2	6	7	...	...	6	...	13	60
				1901	139	9	4	1	2	4	2	1	1	1	8	8	...	...	8	...	23	72
Others				1902	105	3	3	...	1	5	2	...	1	...	4	5	1	...	3	...	6	34
				1901	104	...	...	1	...	1	...	2	...	...	5	2	...	1	4	...	14	30
(Including accidents at level crossings, suicides, and accidents to other persons not coming in any of the above classifications)																						
<b>TOTAL</b>				1902	538	43	19	9	10	88	49	14	23	46	337	699	41	236	322	101	1,051	3,038
				1901	534	58	18	19	12	90	55	31	26	62	277	710	54	278	356	101	925	3,072



**NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES KILLED OR INJURED IN ACCIDENTS TO TRAINS, AND BY THE MOVEMENT OF RAILWAY VEHICLES.**

TABLE NO. 7.

STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Six Months ending 30th June 1902, classified according to the NATURE of the EMPLOYMENT and AGE of the persons injured, and the NATURE of the INJURIES; and also the total number of Persons employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total In-jured.	Number of Persons Employed in 1901.
	Fatal.	Injuries resulting in loss of			Fractures of				Dis-locations.	In-ternal In-juries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to Sys-tem.	Miscellane-ous In-juries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
1. Brakemen. (See Goods Guards.)																			
2. Capstanmen and Capstan-lads: (1) Men	...	...	...	...	...	1	...	...	...	1	5	15	...	3	4	...	12	41	1,052
(2) Boys	...	...	...	...	...	...	1	...	...	...	1	3	...	...	...	1	3	9	204
3. Carmen and Van-guards: (1) Men	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	1	3	16,819
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6,711
4. Carriage Cleaners: (1) Men	6	...	...	...	...	1	1	...	...	2	5	...	...	...	4	...	2	15	5,084
(2) Boys	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	297
5. Carriage and Wag-gon Examiners.	5	...	...	...	...	...	...	...	...	...	...	2	...	...	2	...	1	5	3,454
6. Checkers: (1) Men	1	...	...	...	...	1	...	...	...	...	...	1	...	1	...	...	1	4	7,792
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	179
7. Chockers, Chain-boys, and Slippers: (1) Men	...	...	...	...	...	...	...	1	...	...	2	4	...	2	...	...	1	10	96
(2) Boys	1	...	...	...	...	...	...	...	...	...	3	5	...	2	1	...	6	17	640
8. Clerks: (1) Men	...	2	...	1	...	...	...	...	...	...	1	1	...	...	...	...	1	6	48,245
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	13,565
9. Engine Cleaners: (1) Men...	4	...	1	1	...	1	...	1	...	1	5	9	4	1	1	...	7	32	15,250
(2) Boys	1	...	...	...	...	...	...	...	1	...	...	2	...	...	...	...	1	4	3,993
10. Engine Drivers	8	...	...	...	...	2	2	...	...	6	24	25	14	15	15	3	34	140	25,556
11. Firemen	11	3	...	2	1	4	2	4	1	3	11	49	15	13	35	2	59	204	24,083
12. Gatekeepers	3	...	...	...	...	...	2	...	...	...	1	...	...	...	...	...	...	3	3,507
13. Greasers: (1) Men	2	...	1	...	...	...	1	...	...	...	...	2	...	...	2	...	...	6	964
(2) Boys	1	1	...	...	...	1	...	...	...	...	...	1	...	...	1	...	1	5	841
14. Guards (Goods) and Brakemen.	22	4	...	...	...	8	3	...	4	5	59	120	...	68	34	7	104	416	15,708
15. Guards, Passenger	1	...	...	...	1	2	2	...	2	...	9	10	...	15	10	2	11	64	7,291
16. Horse Drivers	4	...	...	...	...	1	2	...	...	...	3	20	...	4	...	...	10	40	2,272
17. Inspectors: (1) Permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,071
(2) Others	2	2	...	...	...	...	...	...	...	...	...	3	...	4	...	...	4	18	5,701
18. Labourers: (1) Men	17	1	1	...	1	2	6	1	...	2	9	16	...	3	2	1	18	63	52,383
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	899
19. Lampmen and Lamp-lads: (1) Men	2	1	...	...	...	...	...	...	...	...	...	1	...	...	...	1	3	6	1,813
(2) Boys	3	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	2	472
20. Loaders and Sheeters	3	...	...	...	...	1	...	...	...	1	4	2	...	...	...	...	5	13	4,430
21. Mechanics: (1) Men	6	2	...	1	...	1	...	...	...	1	3	3	...	...	1	...	4	16	70,922
(2) Boys	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10,518
22. Messengers: (1) Men	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	652
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,642
23. Number Takers: (1) Men...	1	...	1	...	...	...	...	...	...	...	3	2	...	1	...	...	...	7	823
(2) Boys	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	1	3	745
24. Permanent-way Men	50	3	...	...	...	5	5	1	...	...	13	10	...	...	6	...	19	62	66,621
25. Pointsmen	...	...	...	...	...	...	2	...	...	...	3	1	...	...	1	...	3	10	773
26. Policemen	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1,998
27. Porters: (1) Men	19	1	...	...	2	6	4	...	2	7	30	73	2	12	23	...	49	211	50,134
(2) Boys	4	...	...	...	...	...	...	...	...	...	...	6	...	1	...	...	3	10	5,142
28. Shunters	19	4	3	1	...	6	4	...	4	3	27	68	4	57	18	2	69	270	10,841
29. Signal Fitters and Telegraph Wiremen.	2	...	...	...	...	...	...	...	...	...	2	1	...	...	1	...	...	4	3,843
30. Signalmen	1	...	1	...	...	1	2	...	...	...	2	5	...	1	...	...	4	16	27,723
31. Signal Box Lads	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,079
32. Station Masters	1	...	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	2	8,103
33. Ticket Collectors and Examiners.	...	...	...	...	...	...	1	...	...	...	1	...	...	2	...	1	1	6	3,642
34. Watchmen	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	993
35. Yardsmen	2	1	...	...	...	1	...	...	...	...	5	2	...	1	1	...	3	14	1,717
36. Miscellaneous: (1) Adults	11	...	...	...	...	1	...	...	...	2	7	11	1	3	6	...	13	44	32,723
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	2	...	...	1	...	...	3	2,828
Total of Railway Servants.	218	25	8	7	5	47	41	9	14	34	240	476	40	210	169	20	455	1,800	575,834
37. Contractors' Ser-vants: (1) Men	9	1	...	...	...	2	...	...	...	...	2	3	...	1	1	...	1	11	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total of Contrac-tors' Servants.	9	1	...	...	...	2	...	...	...	...	2	3	...	1	1	...	1	11	
Total of Railway and Contrac-tors' Servants.	227	26	8	7	5	49	41	9	14	34	242	479	40	211	170	20	456	1,811	

## NUMBER OF PERSONS KILLED OR INJURED ON RAILWAY PREMISES OTHERWISE

TABLE No. 8.

SUMMARY STATEMENT OF THE NUMBER of PASSENGERS, SERVANTS of the COMPANIES and KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS COMPANIES during the Six Months ending 30th June 1902, with corresponding figures for the

	1902.					
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>						
1. Whilst ascending or descending steps at stations	3	146	...	3	...	...
2. By being struck by barrows, by falling over packages, &c., on station platforms.	...	30	...	...	...	...
3. From falling off platforms on to the ballast ...	1	39	1	2	...	...
4. By other accidents ... ..	1	64	...	2	...	...
<b>TOTAL OF PASSENGERS ... ..</b>	<b>5</b>	<b>279</b>	<b>1</b>	<b>7</b>	<b>...</b>	<b>...</b>
<b>SERVANTS :—</b>						
1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes.	2	768	1	40	...	9
2. Whilst moving goods and luggage in stations or sheds.	...	286	...	13	...	2
3. Whilst working at cranes or capstans ... ..	...	84	1	6	...	2
4. By the falling of waggon-doors, lamps, bales of goods, &c.	...	192	...	16	...	3
5. Whilst attending to engines at rest ... ..	...	581	...	23	...	19
6. From falling off, or when getting on or off engines or vehicles at rest.	1	425	...	33	...	4
7. From falling off platforms on to the ballast ...	...	97	...	4	...	1
8. From falling off ladders, scaffolds, &c. ... ..	4	125	...	9	...	3
9. By stumbling whilst walking on the line ...	1	326	...	9	...	5
10. By being trampled on or kicked by horses whilst engaged in railway work.	...	25	...	1	...	...
11. From being struck by articles thrown from passing trains.	...	1	...	...	...	1
12. From the falling of rails, sleepers, &c., when at work on the line.	...	305	...	16	...	15
13. Otherwise injured when at work on the line or in sidings.	3	511	2	9	...	18
14. Miscellaneous ... ..	2	895	...	39	...	11
<b>TOTAL OF SERVANTS ... ..</b>	<b>18</b>	<b>4,621</b>	<b>4</b>	<b>223</b>	<b>...</b>	<b>93</b>
<b>OTHER PERSONS :—</b>						
On business at stations and sidings ... ..	5	146	1	8	...	3
Miscellaneous ... ..	5	41	1	6	...	...
<b>TOTAL OF OTHER PERSONS ... ..</b>	<b>10</b>	<b>187</b>	<b>2</b>	<b>14</b>	<b>...</b>	<b>3</b>
<b>GRAND TOTAL ... ..</b>	<b>23</b>	<b>5,087</b>	<b>7</b>	<b>244</b>	<b>...</b>	<b>96</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, sidings, goods yards, and all other premises warehousing goods, repairing sheds,

THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 8.

of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE as having been to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, on the PREMISES\* of the RAILWAY UNITED KINGDOM for the Six Months ending 30th June 1901.

1902		1901.		
UNITED KINGDOM.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
3	149	8	144	PASSENGERS :—  1. Whilst ascending or descending steps at stations. 2. By being struck by barrows, by falling over packages, &c., on station platforms. 3. From falling off platforms on to the ballast. 4. By other accidents.
...	30	...	34	
2	41	1	42	
1	66	3	94	
6	286	12	314	TOTAL OF PASSENGERS.
3	817	4	947	SERVANTS :—  1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes. 2. Whilst moving goods and luggage in stations or sheds. 3. Whilst working at cranes or capstans. 4. By the falling of waggon-doors, lamps, bales of goods, &c. 5. Whilst attending to engines at rest. 6. From falling off, or when getting on or off engines or vehicles at rest. 7. From falling off platforms on to the ballast. 8. From falling off ladders, scaffolds, &c. 9. By stumbling whilst walking on the line. 10. By being trampled on or kicked by horses whilst engaged in railway work. 11. From being struck by articles thrown from passing trains. 12. From the falling of rails, sleepers, &c., when at work on the line. 13. Otherwise injured when at work on the line or in sidings. 14. Miscellaneous.
...	301	1	237	
1	92	2	91	
...	211	...	282	
...	628	...	692	
1	462	...	390	
...	102	...	118	
4	137	7	184	
1	340	...	342	
...	26	...	32	
...	2	...	9	
...	336	1	380	
5	538	1	550	
2	945	8	797	
17	4,987	24	5,051	TOTAL OF SERVANTS.
6	157	8	155	OTHER PERSONS :—  On business at stations and sidings.  Miscellaneous.
6	47	8	45	
12	204	16	200	TOTAL OF OTHER PERSONS.
35	5,427	52	5,565	GRAND TOTAL.

\* used for the purpose of working the railway, but does not include factories, workshops, buildings used exclusively for stables, hotels, and other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Whilst loading, unloading, or sheeting Waggon.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst working at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off Platforms on to the Ballast.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>ENGLAND AND WALES.</b>														
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ...	...	3	...	...	...	...	...	...	...	...	...	...	...	...
Brecon and Merthyr ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Cambrian ...	...	2	...	1	...	1	...	2	...	1	...	1	...	...
Central London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	...	3	...	...	...	1	...	...	...	...	...	...	...	...
City and South London ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cockermouth, Keswick, and Penrith.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colne Valley and Halstead ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Furness ...	...	3	...	1	...	1	...	...	...	...	...	3	...	...
Great Central ...	...	28	...	15	...	4	...	2	...	4	...	11	...	2
Great Eastern ...	...	60	...	22	...	1	...	14	...	46	...	20	...	10
Great Northern ...	...	39	...	59	...	3	...	25	...	6	...	26	...	6
Great Western ...	...	79	...	11	...	4	...	12	...	55	...	43	...	12
Hull, Barnsley, and West Riding Junction.	...	1	...	...	...	...	...	...	...	3	...	...	...	...
Lambourne Valley... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire ...	1	111	...	37	...	10	...	17	...	87	...	35	...	3
Lancashire and Yorkshire and London and North-Western Joint.	...	4	...	2	...	1	...	3	...	...	...	...	...	1
Lancashire, Derbyshire and East Coast.	...	1	...	...	...	...	...	...	...	2	...	...	...	1
London and North-Western ...	...	191	...	42	...	18	...	37	...	210	1	112	...	21
London and North-Western and Furness Joint.	...	...	...	1	...	...	...	...	...	...	...	...	...	...
London and North-Western and Great Western Joint.	...	11	...	...	...	1	...	1	...	...	...	1	...	2
London and North-Western and Midland Joint.	...	...	...	3	...	...	...	...	...	...	...	1	...	...
London and South-Western ...	...	28	...	17	...	6	...	13	...	16	...	16	...	2

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Six Months ending 30th June 1902.

8		9		10		11		12		13		14				NAME OF COMPANY.
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscel- laneous.		Total.		
Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	
ENGLAND AND WALES.																
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Alexandra Dock. (Newport)
...	...	...	1	...	...	...	...	...	4	...	4	...	3	...	15	Barry.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Brecon and Merthyr.
...	...	...	1	...	...	...	...	...	1	...	2	...	4	...	16	Cambrian.
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	2	Central London.
...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	6	Cheshire Lines.
...	1	...	...	...	...	...	...	...	...	...	...	1	...	1	1	City and South London.
...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	2	Cookermouth, Keswick, and Penrith.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Colne Valley and Hal- stead.
...	...	...	2	...	...	...	...	...	2	...	...	...	2	...	14	Furness.
...	4	...	5	...	1	...	...	...	8	...	5	...	12	...	96	Great Central.
1	12	...	32	...	6	...	...	...	25	...	69	...	95	1	412	Great Eastern.
...	3	...	14	...	1	...	...	...	22	...	27	1	88	1	319	Great Northern.
...	19	...	23	...	...	...	...	...	40	...	61	...	74	...	433	Great Western.
...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	6	Hull, Barnsley, and West Riding Junction.
...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	2	Lambourne Valley.
...	11	...	15	...	...	...	...	...	14	1	14	...	60	2	414	Lancashire and York- shire.
...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	13	Lancashire and Yorkshire and London and North- Western Joint.
...	...	...	1	...	...	...	...	...	1	...	2	...	1	...	9	Lancashire, Derbyshire and East Coast.
...	27	...	87	...	...	...	...	...	90	...	153	...	222	1	1,210	London and North- Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	London and North-West- ern and Furness Joint.
...	3	...	3	...	...	...	...	...	10	...	11	...	8	...	51	London and North- Western and Great Western Joint.
...	1	...	1	...	...	...	...	...	...	...	...	...	2	...	8	London and North- Western and Midland Joint.
...	8	...	17	...	2	...	...	...	8	1	17	...	24	1	174	London and South- Western.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—*continued*.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Whilst loading, unloading, or shunting Waggon.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst working at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off Platforms on to the Ballast.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>ENGLAND AND WALES—cont.</b>														
London and South-Western and London, Brighton, and South Coast Joint.	...	...	...	1	...	...	...	...	...	...	...	...	...	...
London, Brighton, and South Coast.	1	18	...	...	...	2	...	4	...	7	...	5	...	...
London, Tilbury and Southend ...	...	...	...	1	...	...	...	...	...	...	...	2	...	...
Macclesfield Joint Station ...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Mersey ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ... ..	...	1	...	2	...	...	...	...	...	1	...	1	...	2
Metropolitan and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ... ..	...	...	...	1	...	1	...	1	...	1	...	...	...	1
Midland ... ..	...	107	...	48	...	18	...	35	...	65	...	81	...	16
Midland and Great Northern Joint.	...	9	...	2	...	2	...	3	...	3	...	1	...	...
Midland and Great Western Joint	...	...	...	1	...	...	...	1	...	...	...	...	...	...
Midland and Lancashire and Yorkshire Joint.	...	1	...	...	...	1	...	...	...	...	...	...	...	...
Neath and Brecon ... ..	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Normanton Joint Station ...	...	1	...	...	...	...	...	1	...	...	...	1	...	...
North-Eastern ... ..	...	42	...	16	...	7	...	12	...	36	...	36	...	5
North-Eastern and London and North-Western Joint.	...	...	...	...	...	...	...	1	...	...	...	...	...	...
North London ... ..	...	1	...	1	...	...	...	1	...	...	...	2	...	5
North Staffordshire ... ..	...	2	...	...	...	...	...	...	...	1	...	2	...	...
North Wales and Liverpool ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Nottingham Joint Station ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	2	...	...	...	...	...	...	...	...	...	...	...	...
Otley and Ilkley Joint ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Rhondda and Swansea Bay ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Severn and Wye Joint ... ..	...	...	...	...	...	...	...	1	...	1	...	1	...	...

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Six Months ending 30th June 1902.

8		9		10		11		12		13		14		Total.		NAME OF COMPANY.
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscellaneous.				
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	ENGLAND AND WALES— <i>cont.</i>
1	2	...	2	...	...	...	1	...	5	...	4	...	3	2	48	1 London and South-Western and London, Brighton, and South Coast Jt. London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	4 London, Tilbury and Southend.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2 Macclesfield Joint Station.
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1 Mersey.
...	1	...	3	...	...	...	...	...	1	...	3	...	4	...	19	19 Metropolitan.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1 Metropolitan and Great Western Joint.
...	1	...	1	...	...	...	...	...	1	...	1	...	...	...	9	9 Metropolitan District.
...	11	...	54	...	10	...	...	...	34	1	64	...	162	1	695	695 Midland.
...	...	...	2	...	...	...	...	...	1	...	2	...	3	...	28	28 Midland and Great Northern Joint.
...	...	...	2	...	...	...	...	...	...	...	...	...	3	...	7	7 Midland and Great Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3	3 Midland and Lancashire and Yorkshire Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1 Neath and Brecon.
...	1	...	1	...	3	...	...	...	...	...	...	...	3	...	11	11 Normanton Joint Station.
...	8	...	37	...	2	...	...	...	24	...	46	...	71	...	342	342 North-Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1 North - Eastern and London and North-Western Joint.
...	2	...	3	...	...	...	...	...	2	...	7	...	4	...	28	28 North London.
...	1	...	1	...	...	...	...	...	...	...	3	...	7	...	17	17 North Staffordshire.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1 North Wales and Liverpool.
...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	3	3 Nottingham Joint Station.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2 Oldham, Ashton-under-Lyne, and Guide Bridge Junction.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	2 Otley and Ilkley Joint.
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1 Rhondda and Swansea Bay.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	3 Severn and Wye Joint.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—continued.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Whilst loading, unloading, or sheeting Waggon.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst working at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off Platforms on to the Ballast.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
<b>ENGLAND AND WALES—cont.</b>														
Sheffield and Midland Joint ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint ...	...	2	...	...	...	...	...	...	...	1	...	2	...	...
South-Eastern and Chatham ...	...	11	...	3	...	5	...	2	...	12	...	10	...	6
Stalybridge Joint Station...	...	1	...	...	...	1	...	...	...	...	...	...	...	...
Taff Vale ...	...	7	...	3	...	...	...	4	...	21	...	9	...	1
Waterloo and City ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West London Extension ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay.	...	...	...	...	...	...	...	...	...	1	...	2	...	...
<b>TOTAL, ENGLAND AND WALES</b>	<b>2</b>	<b>768</b>	...	<b>286</b>	...	<b>84</b>	...	<b>192</b>	...	<b>81</b>	<b>1</b>	<b>425</b>	...	<b>97</b>
<b>SCOTLAND.</b>														
Caledonian ...	...	19	...	7	...	4	...	4	...	12	...	14	...	3
Dumbarton and Balloch Joint ...	...	...	...	1	...	...	...	2	...	...	...	...	...	...
Glasgow and Paisley Joint ...	...	2	...	...	...	...	...	2	...	...	...	1	...	...
Glasgow and South-Western ...	...	3	...	...	...	...	...	...	...	...	...	...	...	...
Great North of Scotland ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Highland ...	...	3	...	...	...	...	...	...	...	1	...	1	...	...
North British ...	1	13	...	5	1	2	...	8	...	14	...	17	...	1
<b>TOTAL, SCOTLAND</b>	<b>1</b>	<b>40</b>	...	<b>13</b>	<b>1</b>	<b>6</b>	...	<b>16</b>	...	<b>28</b>	...	<b>33</b>	...	<b>4</b>
<b>IRELAND.</b>														
Belfast and County Down ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties ...	...	6	...	1	...	2	...	2	...	10	...	2	...	1
Cork, Bandon, and South Coast ...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Dublin, Wicklow, and Wexford ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Great Northern ...	...	...	...	...	...	...	...	...	...	4	...	...	...	...
Great Southern and Western ..	...	2	...	...	...	...	...	1	...	3	...	1	...	...
Midland Great Western ...	...	...	...	1	...	...	...	...	...	...	...	1	...	...
<b>TOTAL, IRELAND</b>	...	<b>9</b>	...	<b>2</b>	...	<b>2</b>	...	<b>3</b>	...	<b>19</b>	...	<b>4</b>	...	<b>1</b>
<b>TOTAL, UNITED KINGDOM...</b>	<b>3</b>	<b>817</b>	...	<b>301</b>	<b>1</b>	<b>92</b>	...	<b>211</b>	...	<b>628</b>	<b>1</b>	<b>462</b>	...	<b>102</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and



## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Six Months ending 30th June 1902.

8 From falling off Ladders, Scaffolds, &c.		9 By stumbling whilst walking on the Line.		10 By being trampled on or kicked by Horses whilst engaged in Railway Work.		11 By being struck by Articles thrown from passing Trains.		12 By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		13 Otherwise Injured when at Work on the Line or in Sidings.		14 Miscel- laneous.		Total.		NAME OF COMPANY
Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	
...	...	...	1	...	...	...	...	...	1	...	...	...	1	...	4	ENGLAND AND WALES— <i>cont.</i>
...	1	...	2	...	...	...	...	...	2	...	5	...	1	...	16	Sheffield and Midland Joint.
2	4	1	9	...	...	...	...	...	4	...	3	...	15	3	84	Somerset and Dorset Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	South-Eastern and Chat- ham.
...	1	...	2	...	...	...	...	...	8	...	5	...	10	...	71	Stalybridge Joint Station.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	Taff Vale.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	Waterloo and City.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	West London Extension.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Wrexham, Mold, and Connah's Quay.
4	125	1	326	...	25	...	1	...	305	3	511	2	895	13	4,621	{ TOTAL, ENGLAND AND WALES.
SCOTLAND.																
...	3	...	6	...	1	...	...	...	7	...	3	...	18	...	101	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	Dumbarton and Balloch Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	7	Glasgow and Paisley Joint.
...	1	...	...	...	...	...	...	...	...	1	...	...	...	1	4	Glasgow and South- Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Great North of Scotland.
...	...	...	...	...	...	...	...	...	1	...	1	...	2	...	9	Highland.
...	5	...	3	...	...	...	...	...	8	1	5	...	16	3	97	North British.
...	9	...	9	...	1	...	...	...	16	2	9	...	39	4	223	TOTAL, SCOTLAND.
IRELAND.																
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	Belfast and County Down.
...	2	...	1	...	...	...	...	...	8	...	5	...	2	...	42	Belfast and Northern Counties.
...	...	...	...	...	...	...	...	...	1	...	1	...	1	...	5	Cork, Bandon, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	8	Dublin, Wicklow, and Wexford.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	5	Great Northern.
...	1	...	3	...	...	...	1	...	5	...	11	...	4	...	32	Great Southern and Western.
...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	5	Midland Great Western.
...	3	...	5	...	...	...	1	...	15	...	18	...	11	...	93	TOTAL, IRELAND.
4	137	1	340	...	26	...	2	...	336	5	538	2	945	17	4,937	{ TOTAL, UNITED KING- DOM.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 10.

STATEMENT showing the number of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD OF TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES during the Six Months ending 30th June, 1902, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS injured and the NATURE of the INJURIES; and also the total number of PERSONS employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	No. of Persons employed in 1901.
	Fatal.	Injuries resulting in loss of			Fracture of				Dislocation.	Internal Injuries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to System.	Miscellaneous Injuries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skulls.	Legs or Arms.	Collar-bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.		
1. Brakemen. (See Goods Guards.)																			
2. Capstan-men and Capstan-lads: (1) Men	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	4	6	1,032
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	204	
3. Carmen and Van-guards: (1) Men	...	1	...	1	...	4	2	...	2	4	12	58	...	29	20	...	40	173	16,819
(2) Boys	1	...	...	...	...	2	...	...	...	2	2	22	1	4	6	1	22	62	6,711
4. Carriage-cleaners: (1) Men	1	...	...	...	...	1	...	...	...	1	9	9	2	13	5	1	20	61	5,084
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	2	1	...	1	...	2	6	297
5. Carriage and wagon examiners.	...	...	...	...	...	1	...	...	...	1	1	5	1	4	2	...	7	22	3,454
6. Checkers: (1) Men	...	...	...	1	...	2	...	1	2	1	6	25	...	19	9	1	28	95	7,792
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	179
7. Chockers, Chain-boys, and Slip-pers: (1) Men	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	2	96
(2) Boys	...	...	...	...	...	...	...	...	...	...	1	2	1	...	1	...	3	8	640
8. Clerks: (1) Men	...	...	...	...	...	...	...	...	1	...	...	...	1	9	2	...	8	21	48,245
(2) Boys	...	...	...	...	...	2	...	...	...	...	1	1	...	2	...	...	...	6	13,565
9. Engine-cleaners: (1) Men	...	...	...	...	...	1	...	2	2	6	12	42	12	25	24	...	61	187	15,250
(2) Boys	...	...	...	...	...	1	...	...	...	1	3	7	3	2	10	...	14	41	3,993
10. Engine-drivers	...	...	...	...	...	3	7	2	3	1	19	46	16	50	33	...	99	279	25,556
11. Firemen	...	...	...	...	...	4	1	...	2	8	21	82	19	58	40	...	114	349	24,063
12. Gatekeepers	...	...	...	...	...	1	...	...	...	...	1	3	...	3	1	...	1	10	3,507
13. Greasers: (1) Men	...	...	...	...	...	1	...	...	...	...	...	2	...	2	1	...	2	8	964
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	841
14. Guards (Goods) and Brakemen.	...	...	...	...	...	2	1	...	1	3	6	28	1	55	15	...	48	160	15,708
15. Guards (Passenger)	...	...	...	...	...	2	1	1	3	1	1	9	...	21	4	1	14	58	7,291
16. Horse-driver	...	...	...	...	...	...	1	...	...	1	1	8	...	4	1	...	4	20	2,272
17. Inspectors: (1) Permanent-way	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	1,071
(2) Others	...	...	...	...	...	...	...	...	...	1	...	4	...	4	...	...	1	10	5,701
18. Labourers: (1) Men	4	...	...	1	1	13	9	7	3	8	18	200	10	68	61	...	203	602	52,383
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	2	...	1	...	...	1	4	399
19. Lamp-men and lamp-lads: (1) Men	...	...	...	...	1	2	...	...	...	2	4	7	1	8	4	...	14	43	1,813
(2) Boys	...	...	...	...	...	...	...	...	3	...	3	2	...	4	2	...	4	18	473
20. Loaders and Sheeters.	...	...	...	1	...	2	3	...	1	3	3	27	...	8	7	...	28	83	4,430
21. Mechanics: (1) Men	3	...	1	...	...	8	2	1	2	6	14	40	6	39	27	1	69	216	70,922
(2) Boys	...	...	...	1	...	...	...	...	...	...	1	...	...	1	2	...	6	11	10,518
22. Messengers: (1) Men	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	652
(2) Boys	...	...	...	...	...	...	...	1	...	...	...	1	...	2	...	...	3	7	2,642
23. Number-takers: (1) Men	...	...	...	...	...	...	...	...	...	...	1	2	...	2	1	...	1	7	823
(2) Boys	...	...	...	...	...	...	...	...	...	...	1	1	...	1	1	...	2	6	745
24. Permanent-way Men.	3	1	...	2	1	15	4	9	6	9	16	227	1	92	48	...	202	633	66,621
25. Pointsmen	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	4	7	772
26. Policemen	...	...	...	...	...	...	...	...	...	...	1	2	...	4	1	...	6	14	1,396
27. Porters: (1) Men	2	1	...	1	...	22	10	7	9	27	63	335	6	191	101	6	530	1,109	50,134
(2) Boys	...	...	...	...	...	...	...	...	1	...	...	10	...	11	2	...	5	29	5,142
28. Shunters	...	...	...	...	...	1	1	1	2	1	4	15	...	34	9	1	26	95	10,841
29. Signal fitters and Telegraph Wiremen.	...	...	...	1	...	1	...	...	...	...	...	4	...	6	2	...	9	23	3,843
30. Signalmen	...	...	...	...	1	1	1	1	1	3	10	16	...	31	9	...	19	93	27,723
31. Signal-box lads	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	2	2,079
32. Station-masters	...	...	...	...	...	...	...	...	...	...	2	1	...	3	1	...	6	13	8,103
33. Ticket-collectors and Examiners.	...	...	...	...	...	...	...	...	1	...	3	4	...	2	...	...	4	14	3,642
34. Watchmen	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	2	993
35. Yardsmen	...	...	...	...	...	...	...	...	...	...	1	3	...	5	1	...	2	12	1,717
36. Miscellaneous: (1) Adults	...	...	...	1	...	2	3	1	3	2	14	61	8	43	23	2	85	248	32,723
(2) Boys	...	...	...	...	...	1	...	...	1	...	1	1	...	4	2	...	4	14	2,828
Total of Railway Servants	14	3	1	10	4	95	47	34	49	92	256	1,318	90	868	483	14	1,529	4,893	575,834
37. Contractors' Servants: (1) Men	3	...	...	...	...	8	...	...	1	1	5	6	...	2	11	...	9	43	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	
Total of Contractors' Servants	3	...	...	...	...	8	...	...	1	1	5	6	...	2	11	...	10	44	
Total of Railway and Contractors' Servants	17	3	1	10	4	103	47	34	50	93	261	1,324	90	870	494	14	1,539	4,937	

## ACCIDENTS TO TRAINS, ROLLING STOCK AND PERMANENT WAY.

TABLE No. 11.

SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to the BOARD OF TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM during the Six Months ending 30th June 1902, classified according to the NATURE of the ACCIDENT; with figures for the UNITED KINGDOM for the corresponding period of 1901.

NATURE OF ACCIDENT.	1902.				1901.
	ENGLAND AND WALES.	SCOTLAND.	IRELAND.	UNITED KINGDOM.	UNITED KINGDOM.
<b>(A)—ACCIDENTS TO TRAINS :—</b>					
1. Collisions between passenger trains or parts of passenger trains.	10	2	...	12	16
2. Collisions between passenger trains and goods or mineral trains or light-engines.	12	3	...	15	24
3. Collisions between goods trains or parts of goods trains and light-engines.	7	2	...	9	26
4. Collisions between trains and vehicles standing foul of the line.	4	3	...	7	3
5. Collisions between trains and buffer-stops or vehicles standing against buffer-stops :—					
(a) From trains running into stations or sidings at too high a speed.	10	...	1	11	8
(b) From other causes ... ..	6	1	...	7	8
6. Trains coming in contact with projections from other trains running on parallel lines.	1	...	...	1	...
7. Passenger trains or parts of passenger trains leaving the rails.	20	4	4	28	33
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	2	2	...	4	13
9. Trains running through gates at level-crossings or into other obstacles.	49	25	4	78	87
10. Fires in trains ... ..	3	1	...	4	11
11. Miscellaneous ... ..	1	1	...	2	...
<b>(B)—ACCIDENTS TO OR FAILURE OF ROLLING STOCK AND PERMANENT WAY :—</b>					
12. The bursting of boilers or tubes, &c., of engines...	...	...	...	...	3
13. The failure of machinery, springs, &c., of engines	1	...	1	2	2
14. The failure of tyres ... ..	112	4	1	117	117
15. " " " wheels ... ..	2	...	...	2	...
16. " " " axles ... ..	57	17	...	74	88
17. " " " brake apparatus* ... ..	...	...	...	...	...
18. " " " couplings ... ..	8	...	1	9	4
19. " " " ropes used in working inclines ...	...	...	...	...	...
20. " " " tunnels, bridges, viaducts, culverts, &c.	1	...	...	1	...
21. Broken rails ... ..	132	19	20	171	170
22. The flooding of portions of permanent way of such a nature as to involve danger.	...	...	...	...	1
23. Slips in cuttings or embankments of such a nature as to involve danger.	3	1	...	4	5
24. Fires at stations or involving injury to bridges or viaducts.	7	...	...	7	2
25. Miscellaneous ... ..	1	...	...	1	...

\* A Return is published half-yearly setting out in detail all the cases in which brake apparatus has failed to act properly.

TABLE No. 12.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Six Months ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES.													
Brecon and Merthyr ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambrian ...	...	...	...	...	...	...	...	...	2	...	...	...	...
Central London ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	...	...	...	...	...	...	...	...	...	...	...	...	...
City and South London ...	...	...	...	...	...	...	...	...	...	...	...	1	...
Festiniog ...	...	...	...	...	...	...	...	...	1	...	...	...	...
Furness ...	...	...	...	...	...	...	...	...	...	...	1	...	...
Great Central ...	...	...	...	...	...	...	...	...	...	...	2	...	...
Great Eastern ...	1	1	...	...	1	...	...	...	...	...	10	...	...
Great Northern ...	2	...	2	...	...	...	...	...	3	...	3	...	...
Great Northern and London and North Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Western ...	...	2	...	2	2	...	...	...	3	...	13	...	...
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire	2	...	...	1	2	2	...	...	...	...	2	...	...
Lancashire and Yorkshire and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...
Lancashire, Derbyshire, and East Coast.	...	...	...	...	...	...	...	...	1	...	...	...	...
London and North-Western	1	2	1	...	...	1	...	...	...	2	...	...	...
London and North-Western and Great Western Joint.	...	...	...	...	...	...	...	...	1	...	...	1	...
London and South-Western	...	...	...	...	1	1	...	...	...	...	4	...	...
London, Brighton, and South Coast.	1	1	...	1	...	...	1	...	...	...	4	...	...
London, Tilbury, and South-end.	...	...	...	...	...	...	...	...	...	...	...	...	...
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	...	1	...	...	...	...
Metropolitan District	...	...	...	...	1	...	...	...	...	...	...	...	...
Midland ...	...	1	2	...	...	1	...	...	...	...	1	...	...
Midland and Great Northern Joint.	...	...	...	...	...	...	...	...	...	...	2	...	...
Midland and South-Western Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...
North-Eastern ...	1	3	2	...	1	...	...	...	6	...	3	1	...
North-Eastern and London and North-Western Joint.	...	...	...	...	...	1	...	...	1	...	...	...	...
North Staffordshire ...	...	...	...	...	...	...	...	...	...	...	...	...	1

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those



TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Six Months ending

NAME OF COMPANY.	A.												
	1	2	3	4	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains running on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES —cont.													
Rhondda and Swansea Bay	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhymney ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Sheffield and Midland Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint	...	...	...	...	...	...	...	...	...	...	1	...	...
South-Eastern and Chatham.	2	1	...	...	2	...	...	1	...	2	...	...	...
Taff Vale ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Waterloo and City ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wigan Junction ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES.	10	12	7	4	10	6	1	20	2	49	3	1	1
SCOTLAND.													
Caledonian ... ..	...	1	1	...	...	1	...	2	1	12	1	...	...
Dundee and Arbroath Joint	...	...	...	1	...	...	...	...	...	1	...	...	...
Glasgow and South-Western.	1	1	...	...	...	...	...	2	1	1	...	...	...
Glasgow District Subway	1	...	...	...	...	...	...	...	...	...	...	...	...
Highland ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
North British ... ..	...	1	1	2	...	...	...	...	...	11	...	...	1
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	2	3	2	3	...	1	...	4	2	25	1	1	1
IRELAND.													
Belfast and County Down	...	...	...	...	1	...	...	1	...	...	...	...	...
Belfast and Northern Counties.	...	...	...	...	...	...	...	1	...	...	...	...	...
Cavan and Leitrim ...	...	...	...	...	...	...	...	...	...	1	...	...	...
Cork, Bandon and South Coast.	...	...	...	...	...	...	...	...	...	2	...	...	...
Dublin, Wicklow and Wexford.	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Southern and Western.	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland Great Western ...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Clare ... ..	...	...	...	...	...	...	...	2	...	1	...	...	...
TOTAL, IRELAND ...	...	...	...	...	1	...	...	4	...	4	...	...	...
TOTAL, UNITED KINGDOM	12	15	9	7	11	7	1	28	4	78	4	2	2

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE No. 12—continued.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 30th June 1902.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Ships in Cuttings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	1	...	1	...	1	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	...	...	1	...	1	...	...	18	...	...	1	...
...	...	...	...	1	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	64	...	6	...	...	...	...	...	...	...	...	...
...	1	112	2	57	...	8	...	1	132	...	3	7	1
...	...	2	...	4	...	...	...	...	16	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	8	...	...	...	...	2	...	1	...	...
...	...	...	...	5	...	...	...	...	...	...	...	...	...
...	...	4	...	17	...	...	...	...	19	...	1	...	...
...	...	...	...	...	...	...	...	...	2	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	6	...	...	...	...
...	...	...	...	...	...	...	...	...	5	...	...	...	...
...	1	...	...	...	...	1	...	...	6	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	1	...	...	...	1	...	...	20	...	...	...	...
...	2	117	2	74	...	9	...	1	171	...	4	7	1

under B are entered against the Company to which the rolling stock or permanent-way belongs.

Board of Trade,  
11th October, 1902.

FRANCIS J. S. HOPWOOD.





## APPENDIX A.

### REPORTS TO THE BOARD OF TRADE BY INSPECTING OFFICERS OF THE RAILWAY DEPARTMENT UPON CERTAIN ACCIDENTS WHICH HAVE BEEN INQUIRED INTO.

	Page.		Page.
GLASGOW AND SOUTH WESTERN :		LANCASHIRE AND YORKSHIRE :	
Lieutenant-Colonel Yorke's report on the accident which occurred on the 19th May to a passenger train, a portion of which left the rails at Kilmarnock Station.	45	Major Druitt's report on the collision which occurred on the 22nd May between a passenger train and buffer stops at Exchange Station, Liverpool.	57
GREAT EASTERN :		NORTH BRITISH :	
Lieutenant-Colonel von Donop's report on the accident which occurred on the 25th April to a passenger train, a portion of which left the rails near Hackney Downs Station.	49	Major Pringle's report on the collision which occurred on the 14th May between a passenger train and a derailed waggon at Polmont.	60

NOTE.—The Report on the fatal collision that occurred on the 12th April at Sutton Coldfield on the London and North-Western Railway will be included in Appendix A. to the Railway Accident Returns for the nine months ending 30th September, 1902.

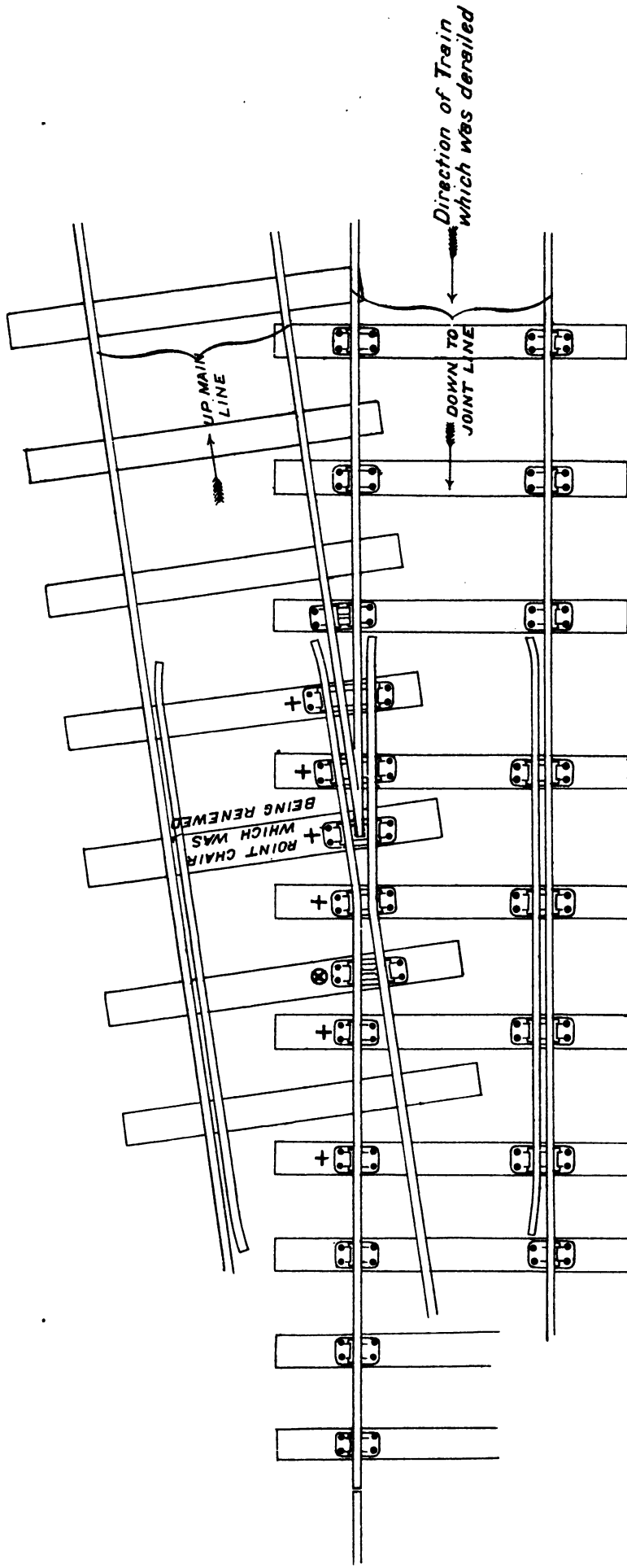
For other Reports of Inquiries into Accidents which have occurred during the six months, *see* [Cd. 1232].





# GLASGOW & SOUTH WESTERN RAILWAY.

SKETCH OF CROSSING AT KILMARNOCK.  
WHEN ACCIDENT OCCURRED 19<sup>TH</sup> MAY 1902.



NOTE - The Keys were out of the Chairs marked + when the train was passing. The Key of the Chair marked ⊕ was loosely replaced by Foreman Ferry and came out when Train was passing over.

## GLASGOW AND SOUTH WESTERN RAILWAY.

Railway Department (Board of Trade),  
8, Richmond Terrace, Whitehall, London, S.W.,  
July 17th, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 23rd May, the result of my inquiry into the accident that occurred on the 19th May at Kilmarnock Station on the Glasgow and South Western Railway.

In this case, as the 8 a.m. passenger train from Kilmarnock to Glasgow was crossing from the main line to the joint (Glasgow and South Western and Caledonian) line at Kilmarnock Junction, the third vehicle of the train left the rails at the intersection of the down joint line with the up main line, and falling over on to its left side dragged all the other carriages of the train off the line with the exception of the front brake van.

Twenty-three passengers were injured, in two cases severely.

The train, which was well filled, consisted of an engine and tender, and eight six-wheeled coaches, namely, a brake-van next to the engine, five third-class carriages, one first class, and a brake third at the rear.

The train was fitted throughout with the automatic continuous brake, which was in good working order.

Fortunately the speed was low as the train had just left Kilmarnock Station, otherwise the results of the accident would have been much more serious.

Seven carriages were more or less damaged (for details, *see* Appendix).

*Description.*

About 120 yards north-west of Kilmarnock Station there is a double junction between the main lines of the Glasgow and South Western Railway, and the joint (Glasgow, Barrhead and Kilmarnock) lines of the Glasgow and South Western and Caledonian Companies. The junction is "facing" to down trains, and "trailing" to up trains. The main lines are practically straight, and the joint lines diverge towards the north, that is, to the right as viewed from a train approaching the junction from the station. The junction presents no unusual features whatever, the angle of the crossing between the down joint line and up main line being about 1 in 8. The signal box (No. 1), from which the junction points are worked, is adjacent to the junction on the south (or left) side of the lines, and the site of the accident is in full view of the signalman.

It appears that permanent-way foreman Bernard Ferry went to the signal-box about 7.15 a.m., and told the signalman that he was going to put a new point chair in the single (or V) crossing in the south-east angle of the intersection of the down joint and up main lines, which operation he said would occupy about 10 minutes. I attach a plan which clearly shows the position of the chair which Ferry desired to renew. Signalman Holland replied that he could have possession of the line at once. Ferry thereupon started work, but through some bungling, which he attributes to the inexperience of his gang, the operation was not completed at eight o'clock, when the train for Glasgow left Kilmarnock Station. At that time the old point chair had been removed, but the new chair was not secured in its place, and several of the keys on either side of the V were removed (*see* plan). As soon as Ferry saw the train approaching he endeavoured to put a key into the chair, at the knee of the wing rail, but he was only partially successful, and the key dropped out again after the engine and van had passed through the crossing. The result was that the rail on that side of the track was pushed out of place by the pressure of the flanges of the wheels against it, and the remaining vehicles of the train were derailed.

As soon as the driver became aware that something was wrong he brought the train to a standstill. His engine, tender and the front van were then found to be on the down joint line, that is, the line they were intended to follow. The second carriage had followed the same course, but was off the rails, the third coach was on its side in the angle between the down joint and up main lines, while the rest of the train had taken the direction of the up main line, all wheels being off the rails.

*Evidence.*

*George Holland*, signalman, No. 1 cabin, states: On the 19th May I came on duty at 6 a.m. to work till 2 p.m. I have been in the service 21 years, all that time employed as a signalman, and have been 6 years in No. 1 cabin. The 8 a.m. train ex Kilmarnock, which is formed of the 7.30 a.m. ex Darvel, arrived 7.57, was warned to Goods Junction 7.57, accepted 7.57, and left at 8 a.m. I saw nothing until I heard the noise of the carriages off the road, when I looked out of the window and saw one of the carriages bumping. Between 7.30 and 7.35 a.m., Foreman Bernard Ferry, of the permanent way, came to the signal-box and informed me he was going to put a chair into one of the crossings. I asked him how long it would take him, and he said five or six minutes. I asked him also if he was ready to do it, and he answered "Yes," to which I replied that he could have possession at once. I added that the first train which was coming would be the 7.5 ex Ardrossan. I did not say this because I thought he wanted possession of the up main line, but merely to let him know how matters stood. I understood him to say that it was the crossing on the up joint line that he required possession of, and I therefore informed him that I would bring the pilot, which usually runs through the up joint line to do some station work on Monday mornings, *via* the up main line which would leave him undisturbed for a longer period. He left me then and went back to his work, and I do not remember him asking any further question or making any further comment. I felt certain that they were working on the up joint line, and not on the up main line as the 7.5 a.m. from Ardrossan came in *via* the up main line with all signals off, whereas if I had known that they were working on the up main line I would have made sure that the crossing was safe to pass over before I lowered my signals.

*Robert Lindsay*, assistant signalman, Kilmarnock No. 1, states: I have been 10 years in the service, and have been 1½ years at Kilmarnock, and on the 19th May came on duty at 6 a.m. to work till 2 p.m. I was in the signal cabin when foreman Bernard Ferry came up about 7.30 a.m. to ask for possession to put in a chair in the incoming road. I heard my mate answer him that he could have possession until about 7.50, as the 7.5 a.m. from Ardrossan would be due at 7.53, and he replied that he would not require more than 6 minutes to put in the chair. I understood foreman Bernard Ferry to say that he required possession of the incoming road and the joint line slip. I looked out of the window and saw the surfacemen were not engaged on the up main line before I drew the signals for that line for the 7.5 a.m. train from Ardrossan. I was of opinion that they had finished their work on the up main line, and were merely doing some ordinary service work on the down main line, as foreman surfaceman only asked possession for 5 or 6 minutes. I cannot say whether a flagman was out. I satisfied myself before I accepted the 7.5 a.m. train on the up main line by going to the window, as before stated, and thought the work was completed. At 7.59 I lowered the signals for the 8 a.m. train from Kilmarnock to Glasgow. I may state that at the moment of the accident I was looking towards the down advance starting signal of the joint line, and I saw the wheels of the third carriage from the engine leave the rails, and the wheels of the rest of the carriages followed. Having seen this I at once went to the place, and I saw that the

point chair was not in its position on the sleeper under the crossing, nor were the keys in the chairs of the wing rails, that is, on the left-hand side of the crossing in the direction the train was travelling.

*Arthur Doyle*, driver, Hurlford, states: I have been 19 years in the service, and have been six years a driver. On the 19th May I came on duty at 4.50 a.m. to work till 11 a.m. Engine is fitted with Westinghouse and vacuum brakes, and was working latter on the train. I was working the 7.30 a.m. from Darvel to Kilmarnock, which forms the 8 a.m. Kilmarnock to Glasgow. I got all starting signals off at Kilmarnock, and, according to my watch, I started at 8.1 a.m. from No. 3 platform. After passing No. 1 cabin I felt something drag, and having just drawn up the expansion I thought perhaps the lever was over the centre and engine in back gear, but on looking at it I found it was all right. I looked at the vacuum indicator to see if the guard had been applying the brake, and I observed the pointer of the indicator bobbing up and down. I therefore felt sure there was something wrong, and I immediately shut off steam and applied the brake, which indicated 18 inches vacuum, and the Westinghouse about 80 lbs. I destroyed both by the full application of the brake. When the train stopped I looked backwards and saw a carriage, which I found afterwards was the third from the engine, lying broadside on the rails. I then left my engine and went to the rescue, and assisted in taking some of the passengers out. One of the passengers—a female passenger—was injured, and blood was flowing from her face when I assisted her. I assisted her across to the up side of the line clear of the obstruction, and left her there in charge of some people. I felt nothing unusual when passing over the crossing, and I did not look back until I had brought the train to a stand for the reasons before mentioned. I was travelling about 10 or 12 miles an hour when I shut off steam and applied the brake. The surfacemen were working on the right hand side of the down joint line as I approached them, and one appeared to me to be driving in a key, but as the man stepped clear of the train before I reached him it did not appear to me to be anything unusual.

*Frederick Monaghan*, fireman, states: I have been seven years in the service, and have been three years a fireman. I came on duty at 4.50 a.m. to work till 11 a.m. I was on the 7.30 a.m. train, Darvel to Kilmarnock, and 8 a.m. Kilmarnock to Glasgow. The train started about 8.1½ according to my watch. I noticed nothing until we passed the cabin, when I felt the train dragging, and I looked to see if my mate had reversed engine to back gear. When I saw that was all right I looked at vacuum gauge to see if the brake was all right—I only gave a glance—but did not observe anything, and was in the act of turning round when I noticed yardsman signalling to me to stop, and looking further back I observed one of the carriages turning over. I had previously called to my mate when receiving signal from the yardsman, and I called to him again. I saw what had happened, but by this time he had brakes already on and train was almost stopped. I jumped off my engine to see if I could render any assistance, but seeing plenty of people to assist I returned to my engine.

*Joseph Williamson*, guard, states: I have been 29 years in the service, and have been a passenger

guard for 15 years. I came on duty at 7.30 to work till 10.30 a.m., and would have come on duty again at 2 p.m. to work till midnight. This is special Monday working, which I would have had only once in ten weeks. I had joined the 8 a.m. train Kilmarnock to Glasgow at Kilmarnock Station, and started at 8 o'clock according to the station clock. My train consisted of the following formation, reading from the engine:—Brake-van No. 43; third-class carriages Nos. 373, 210, 39, 393; first-class No. 151; third-class No. 446; and brake third No. 47; and was composed of six-wheeled stock fitted throughout the train with vacuum. The train was well filled, being a holiday. The signals were all right for us when we started, and I was looking out of the left-hand window until we entered the points of the junction to the joint line; then I withdrew inside to mark my departure time into book. Immediately after this I felt the train dragging, and thought perhaps somebody had applied the brake from some of the carriages. At that moment I felt my brake-van was off the road, and I fell down on the floor, but rising I seized hold of the handle of the brake-valve and applied it hard on. After the train had come to a stand I alighted from my brake. I then found the people were jumping out of the train and making towards a carriage which I saw had fallen over on its side. I went forward and rendered what assistance I could in getting some of the passengers out of the carriage. With some others I assisted one lady, who was cut about the face, over to the up side of the line, where she sat down on the bank. I returned again to the carriage and helped another female passenger out from the top. She seemed to me to be cut across the face, and had her arm damaged. She was taken over to the other side of the line—to the up side line—with the other passengers. I also assisted another passenger to alight from the carriage who seemed to me to be injured with a cut at the back of his head, from which the blood was flowing. I then went round the train to see what vehicles were off the rails, and to take their numbers, and found they were all off the rails except brake-van No. 43, which was next the engine. I did not notice any particular damage to any particular vehicle except carriage No. 210, which was down on its broadside. After going round my train I came to see the stationmaster and to report myself. I am not injured, and have not found it necessary to see a doctor. I do not think we were going more than about 10 miles an hour when I felt the train being pulled up. Train was not divided in any way; neither the couplings nor brake pipes separated.

*Bernard Ferry*, foreman surfaceman, states: I have been in the service 28 years, and have been foreman about 17 years. On 19th May I came on duty at 7 a.m. to work till 5.30 p.m. I went up to the signal-box about 7.15 to inform the signalman that we were going to put a point chair in the crossing of the incoming main line and outgoing joint line road. The signalman asked how long it would take to carry out the work, and I told him about 10 minutes if he would give me time for it. We had taken out the old chair before the up Ardrossan train passed, but the new chair was not put in then. We had secured the road by keying up the wing rails. The new chair was put in before the 8 a.m. passed, but was not keyed before the train reached us. I observed nothing wrong until I saw the wheels of the second or third carriage drop off the rails on the left-hand side of the road. It was about 2 yards beyond the crossing where the wheels dropped off. Immediately

after that I saw a carriage turn over on its broadside. I went forward to see if I could render any assistance, but there was already so many people that I found there was nothing I could do. As soon as we could after this we started to replace chairs which had been broken. I was engaged in putting a key into the knee of the wing rail when the 8 a.m. train approached me, but I had not got it firm in, and it shook out when the train was passing over. We were working at this particular crossing, after we had given the signalman warning, until the carriage went off the road. I saw the Ardrossan train some distance off approaching, and had time to get some keys in the wing rails. The crossing is such a short distance from the platform that we did not observe the 8 a.m. train until it was almost on the top of us. After the up Ardrossan train passed over the crossing in its incomplete condition I did not go to the signal-box to warn the signalman that the work at the crossing was not finished. I am quite certain the point chair was under the rail when the 8 a.m. passed, but it was not keyed. My gang consists of five men and myself. Four of us were at work at the crossing that morning. The reason that it took longer than I expected to change the chair was because of the inexperience of my men.

*James Linwood*, foreman, passenger station, states: I have been 14 years in the service, and have been five years foreman at Kilmarnock. I saw the 8 a.m. start from here and was watching it leave the station. Everything appeared to be all right until I heard a noise which seemed to me to indicate there was something wrong. Immediately after hearing the noise I saw a carriage turn over on its broadside. I at once went forward to the scene of the accident, and rendered what assistance I could, and looked round the train and helped some of the people out of the carriage which was turned over, whilst along with some passengers I assisted to raise the carriage (which had fallen over on its side) slightly, so as to release a passenger who had his arm pinned. The passenger had his hand through window of door as though he had been attempting to open the door before the carriage turned over. After we released the passenger we found his arm was broken in two places. Immediately after helping to release him I went back along the train to rear to see if I could discover cause of accident, and found that the point chair at the crossing to the down joint line and up main line was lying out of its place. The chair, which was a new one, was lying outside the rails. After this I proceeded to the station to take up my station duties.

*Hugh Robertson*, way inspector, states: I have been in the service over 20 years, and have been 2 years and 4 months inspector at Kilmarnock. On the Friday previous to the accident I arranged that the chair at the crossing should be replaced. The foreman surfaceman had informed me he was going to put in a new chair at this crossing, but did not inform me on which day. At the time of the accident I was at the station on the down platform and saw the train start, and was then proceeding round the end of Nos. 1 and 2 docks. When I got to No. 1 platform I saw some people running and I went down to the scene of the accident. When I got down there I saw the foreman surfaceman, and observed that the point chair was not properly in position on the sleeper, also that there were no keys in the wing rails at the end next the crossing. I asked the foreman where his flagman was, and he said he had no flagman out, but

explained that he had been up to the signalman and arranged with him, and he thought that was sufficient. It is my opinion that two experienced men could have removed the old chair and

replaced it with a new one in about six minutes. I think that a flagman should have been out. Foreman Ferry is a good experienced and careful man.

### *Conclusion.*

From the brief account already given and from the evidence it will be seen that the principal blame for this derailment lies with foreman Bernard Ferry. Although the repair he had to execute necessitated the removal of the chair at the point of the crossing, and the withdrawal of the keys from six adjacent chairs, thereby rendering this line unsafe, this man took no steps whatever to put out a flagman or flagmen for the protection of the traffic or of his gang. He contented himself with telling the signalman what he was about to do, at the same time informing him that the operation would occupy ten minutes. Again when after the lapse of 40 or 45 minutes he found that, owing as he says to the inexperience and want of skill of the men in his gang, the new chair had not been fixed, he took no steps to warn the signalman that the work was still incomplete and the line unsafe, although he must have been aware that the 8 a.m. train was due to leave Kilmarnock. Ferry has been a surfaceman for 28 years and foreman for 17 years, and bears a good reputation as an experienced and careful man. His action on this occasion does not support this reputation, for he neglected to take any precautions for the safety of the traffic, and for the protection of his own men, who judging from his statement must have barely had time to get out of the way of the train.

But Ferry is not the only man deserving of censure. Signalmen George Holland and Robert Lindsay knew the men were going to work at the crossing, having been so informed by Ferry. Holland says he thought that the work was to be done on the up joint line, and not on the down, but I am disposed to doubt this. Lindsay acknowledges that he understood what Ferry intended to do, and there is no reason why Holland should not have done so too; moreover it is hardly probable that during the interval that elapsed before the train left the station no remark passed between these two men as to the work which was being carried out. Both men say that they saw the gang at work before they lowered the signals for the train, but one says he thought the surfacemen were working on the up joint line, and the other that they were working on the down main line. Such a difference of opinion, if it really existed, shows that neither of these men took any pains whatever to ascertain where the surfacemen were at work, or whether the job about which Ferry spoke to them had been completed. There is this much excuse for them, that Ferry had said the job would take five or ten minutes, whereas after the lapse of three quarters of an hour it was still incomplete. But, although the signalmen were thus misled as to the time likely to be required, it was their duty, knowing as they did that the line would be unsafe during the time that the point chair was being replaced, to have assured themselves that the work was complete, and the line safe for traffic, before lowering the signals for the train. The signal box was close to the spot where the men were at work, and there was no difficulty whatever in communicating with them. It cannot therefore be doubted that the remissness of these signalmen was a contributory cause of the accident.

Foreman Ferry had been on duty an hour, and signalmen Holland and Lindsay two hours at the time of the accident.

I have, &c.,  
H. A. YORKE,  
*Lt.-Col. R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

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### APPENDIX.

#### *Damage to Vehicles.*

No. 373, third class carriage, derailed; three axleboxes, two side lights, and one stay rod broken.

No. 210, third class carriage, on broadside; four axleboxes, eleven side lights, six door

lights, two door handles, one door, one headstock, and two footboards broken; nine footboard hangers, two guide plates, two guide-plate clips and stay rods, two buffers, and one axle bent: body panels and cornice damaged.



No. 39, third class carriage, derailed ; one axlebox, one side light, and one door light broken ; one drawbar and two guide-plate clips bent.

No. 393, third class carriage, derailed ; two axleboxes and four side lights broken.

No. 154, first class carriage, derailed ; one axlebox and one brake truss rod broken.

No. 446, third class carriage, derailed ; one axlebox broken, eight bolts in tyre fastening shorn off.

No. 47, brake third class carriage, derailed ; two safety chains broken.

Printed copies of the above Report were sent to the Company on the 20th August.

## GREAT EASTERN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,

12th May, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 25th of April, the result of my inquiry into the circumstances under which the derailment of a passenger train, which was attended by very serious results, occurred at about 7.10 a.m. on the 25th of April, near Hackney Downs station, on the Great Eastern Railway.

In this case, as the 6.50 a.m. up passenger train from Chingford to Liverpool Street, consisting of an engine and fifteen vehicles, was approaching Hackney Downs station on the up Suburban line, one of its leading vehicles was derailed and caused the train to split at a through crossing, the rear portion of the train taking the rails of the down through line ; the couplings of the train did not in the first instance part, and the third and fourth vehicles, which in consequence of the splitting of the train were derailed between the two lines, came into violent collision with the end of the iron girder of an underbridge which is situated between the lines at that spot. These two vehicles were very seriously damaged, the left side of the one being entirely ripped off and the left side of the other being smashed in.

The train was a very crowded one ; a large number of passengers were injured, two hundred notices of personal injuries sustained having been received by the Company ; three of these cases have already proved fatal, and ten others are said to be of a serious nature.

When the train came to rest, which was almost immediately after the collision with the girder, it was found that the couplings had eventually parted between the third and fourth vehicles. The engine and the two leading vehicles were on their right line, viz., the up Suburban line, and they were not derailed or damaged in any way ; the third vehicle, which was still coupled to the second, was derailed on the left hand side of the up Suburban line, and it had come to rest with its trailing end nine yards beyond the girder end with which it had been in contact. It was subsequently found that the leading axle of this vehicle was broken, it having parted almost exactly at its centre.

The fourth vehicle of the train was found standing upright in the space between the up Suburban and down through lines at right angles to the lines of rails and broad-side up against the end of the girder of the underbridge.

The fifth and sixth vehicles, which had evidently been running on the down through line, were derailed on the further side of that line, both of them leaning over in that direction and being severely damaged.

The remainder of the train was uninjured, the whole of it which had passed the through crossing being found standing on the down through line.

The engine was a six-wheels-coupled tank engine running bunker first ; it was fitted with the Westinghouse automatic brake working blocks on the six coupled wheels and with a hand brake working the same blocks.

The train consisted of the following vehicles attached to the engine in the order given :—

					Wheels.
One third-class brake	...	...	...	...	4
Three third-class carriages	...	...	...	...	4
Three first-class carriages...	...	...	...	...	4
Five second-class carriages	...	...	...	...	4
Two third-class carriages	...	...	...	...	4
One third-class brake	...	...	...	...	4

The whole of these vehicles were fitted with the Westinghouse automatic brake working blocks on all their wheels. All the brakes are reported as having been in good order.

The train is not a workmen's train, but it is the last of two trains, arriving at Liverpool Street between 7 a.m. and 8 a.m., on which passengers from Walthamstow are allowed cheap tickets. It is thus the last morning train by which cheap tickets are issued, and is consequently usually a very crowded one. The train was not running a distance of 20 miles without a stoppage, so it was not provided with any means of communication between the passengers and the guard.

Details of the damage done to rolling stock and permanent way are given in the Appendix.

### *Description.*

Clapton and Hackney Downs Stations, between which points this accident occurred, are both stations on the Great Eastern Railway Company's main line from Cambridge to London, the former station being to the north of the latter. The up and down main lines run between the stations in a direction which is approximately north and south, the up line on which the train concerned in this accident was running, being on the east side.

Between these stations there are two tunnels, known respectively as the Clapton Tunnel and the Hackney Tunnel. The south face of the Clapton Tunnel is situated at a distance of 1,100 yards from the Hackney Downs Station; there is a space of 303 yards from the end of this tunnel to the commencement of the Hackney tunnel, the latter being 446 yards in length, and terminating 351 yards from the station.

The line from the south face of the Clapton Tunnel to about the centre of the Hackney Tunnel is quite level, but from that point onwards into Hackney Downs Station it is a rising gradient varying from 1 in 73 to 1 in 226.

From Clapton Station to a point situated a short distance to the north of Hackney Downs Station there are only the up and down main lines, but at that point there is a double junction where the up and down lines each bifurcate, forming from that point onwards a pair of up and down through lines and a pair of up and down Suburban lines, the former being to the east of the latter. The train to which this accident occurred was due to run into Hackney Downs Station on the up Suburban line, and the road was set and the signals duly lowered for it to do so.

The Hackney Downs signal box is at the north end of that station and on the west side of the line. The facing points on the up main line, where the up through and up Suburban lines bifurcate, are situated at a point just 125 yards to the north of the signal box, and the diamond crossing, where the up Suburban line crosses the down through line, is 90 yards from the box. It was in running through this diamond crossing that the derailment of the train appears to have occurred.

Just to the north of the Hackney Downs signal box there are two underbridges, which are situated almost side by side and parallel to each other, and which carry the through and Suburban lines respectively over the Amhurst Road. These underbridges consist of iron girders, each bridge having one of its main girders standing in the space between the two above mentioned lines. The road over which these bridges carry the lines is not quite at right angles to the line, and the bridge under the Suburban lines is consequently slightly north of the other; the end of the girder of the Suburban lines underbridge is 64 yards south of the through crossing and that of the through lines underbridge is two and a quarter feet further from it. It was with the north end of the girder of the Suburban lines underbridge that the derailed carriages came into violent contact. The flange of this girder is 2 feet 3 inches in width and its upper surface is 5 feet 6 inches above rail level. The width of the space between the up Suburban and the down through lines opposite the end of this girder is  $13\frac{1}{2}$  feet.

The first marks on the permanent way to be seen in connection with this accident occur at a point about 20 yards to the north of the south end of the Clapton Tunnel, *i.e.* just inside the mouth of that tunnel. At this point one of the chairs supporting the left hand rail was found to have been broken in pieces, it having clearly received a severe blow on the portion of it lying within that rail. At the two next sleepers the inside portions of the chairs supporting the right hand rail had distinct wheel marks on them, and from this point onward there were on the ballast and on the sleepers marks of two wheels having been derailed, one on the inside of each rail. The wheel marks inside the left hand rail were just 12 inches from that rail, and those inside the right hand rail were ten inches distant from it. These marks appeared regularly in the above described

positions continuously up to the facing point at the north of Hackney Downs Station—a distance of about 1000 yards.

At this spot the facing-point locking mechanism, which was fixed as usual in the four-foot way, was broken in pieces, and here the wheel marks began for the first time to appear in different positions on the sleepers to those at which they had hitherto so regularly shewed. The marks were still between the rails of the up Suburban line, but they now appeared irregularly, as if the wheels by which they were made were being swayed about from side to side. Some of these marks appeared on the chairs of the right hand rail of the up through line, and further on there were marks on this rail of two wheels having been forced over it.

Onward from the spot at which the wheels had crossed the rail of the up through line the wheel marks then continued to show fairly regularly again between the two rails of the up Suburban line, but at the through crossing, 35 yards beyond the facing point, the rails and chairs were much damaged, and the direction of the line of marks changed to the left, the marks running for a few feet parallel to and inside the rails of the down through line; the line of marks then changed again to the right in the direction of the up Suburban line, and from that point onwards the marks appeared irregularly both inside those rails and on the east side of them up to the point on the underbridge at which the third vehicle of the train came to rest.

The end of the inside girder of the Suburban lines underbridge was much damaged, having clearly been in violent collision with some portion of the train.

### *Evidence.*

*Mr. William Dean* states: I am Chief Superintendent of the Locomotive and Carriage Department of the Great Western Railway. I have held that appointment for about 25 years. I have inspected the broken axle which I understand belonged to one of the vehicles concerned in this accident. From the appearance of the fracture I should infer that the flaw had been in existence for some little time before the breakage. As to the original cause of the flaw one can only speculate. It most probably arose from some small particle of the furnace lining falling into the steel while it was in a molten state, and it would not be noticeable in any subsequent process of the manufacture of the axle. Flaws of this kind are occasionally found to exist, and generally their development is rapid. I saw nothing in the character of the fracture which would indicate that there was external evidence of the existence of the flaw, and this again is no uncommon experience. I think that the flaw had extended to a depth of about one-and-a-half inches from the surface of the axle before the final break occurred. I have heard that this axle had only been four months in use. I do not remember ever to have known a case of an axle breaking in so short a period. The axle was an ordinary carriage axle and appeared to me to be in every way suitable for the work which it had to do. The axles in use on the Great Western Railway are about one-eighth of an inch in diameter larger than this axle, viz.:— $4\frac{1}{4}$  inches as against  $4\frac{1}{2}$ . My impression is that axles of the dimensions in use on the Great Eastern Railway are commonly used throughout the country, and I have no reason to think that they are in any way too small. The axle in question was made of a material which is known as homogeneous iron which I call a very mild form of steel. It is in my opinion the best form of material for axles that I know of.

*William Lovett*, driver, states: I have been about 41 years in the service of the Great Eastern Railway Company, during 35 years of which I have been a driver. I came on duty on the 25th April at 4.15 a.m. to work to 2.13 p.m. I had come off duty on the 24th April at about 2.5 p.m. On the 25th I was driving the 6.50 a.m.

up passenger train from Chingford to Liverpool Street. My engine was a six-wheels-coupled tank engine running bunker first. It was fitted with the Westinghouse automatic brake working blocks on the six coupled wheels and with a hand-brake working blocks on the same wheels. My brakes were all in good order. We left Chingford punctually and we were not more than a minute late when leaving Clapton. Up to that point of our journey nothing unusual occurred. The first I knew of anything having gone wrong was seeing that some platelayers by the side of the line were trying to attract my attention. This was just after my engine had passed the up home signal at Hackney Downs. I immediately shut the regulator and turned the handle of the Westinghouse brake, and immediately after I had done this the accident occurred. There was no shock on my engine, but I looked round and found the train had separated, and at the same time I heard a great crash. My engine came to a stand about two coaches ahead of the signal-box, and I think that three vehicles were then attached to my engine. I think the train parted in the rear of those three vehicles. Up to the time of the platelayers shouting to me I had noticed nothing wrong with the running of my train. I thought that we were going remarkably well, and I had no idea of anything being wrong. The moment that I turned the handle of the Westinghouse brake I saw that the pipe was disconnected. I had not previously noticed the brake applied.

*Daniel Irons*, fireman, states: I have been five years in the service of the Company, during two-and-a-half of which I have been a fireman. I worked the same hours of duty on the 25th as driver Lovett, and I was with him on the 6.50 a.m. train from Chingford. The first I knew of anything having gone wrong to my train was close to Hackney Downs Station, where some platelayers shouted out to us. I at once holloed out to my mate, "Stop," and he shut off steam. The driver at once tried to apply the Westinghouse brake, but the air was all gone, so I myself at once applied the hand-brake. Just as we were shutting off steam I heard the sound of a crash, and then I looked round and saw what had

occurred. There were then only two or three vehicles attached to the engine.

*Alfred Crowe*, guard, states: I have been 18 years in the service of the Company, during 12 of which I have been a guard. I came on duty on the 25th April at 5.20 a.m. to work till 1.30 p.m. I had come off duty on the 24th at 1.30 p.m. On the 25th I was guard of the 6.50 a.m. up passenger train from Chingford. My train consisted of the following vehicles attached to the engine in the order given:—

One third-class brake.  
Three third-class carriages.  
Three first-class carriages.  
Five second-class carriages.  
Two third-class carriages.  
One third-class brake.

All the above were four-wheeled carriages. They were fitted with the Westinghouse automatic brake working blocks on all wheels. The brakes were in good order. I myself was riding in the front brake. We left Chingford punctually to time, and we were about half a minute late at Clapton. Up to the time of leaving Clapton nothing unusual at all had occurred to my train. My train was a very full one, and in addition to the people occupying the seats of the carriages there were also people standing up in them. It is usual for this morning train to be very crowded, and there was nothing unusual in the number of passengers in the train on this occasion. The first I knew of something being wrong with the train was near Hackney Downs Station, when I heard someone call out. I at once dropped the window on the near side of my van and looked out. I looked back and saw that the second vehicle from my van was off the line, and that it had been pulled along the end of the girder. I think that at the time that I looked out the front portion of the train had just come to a stand. The next carriage to that again was broadside on to the end of the girder, but I think that that carriage also had come to rest before I saw it. I could not practically see the remaining portion of the train. It was just as I looked out of the window that the crash occurred. I looked at my watch and saw that it was 7.11 a.m. I jumped out of my carriage. I at once took the necessary steps to protect my train, and I then went to look after the injured people. I had noticed nothing unusual in the running of the train between Clapton and Hackney Downs. Just as I looked out of the window my carriage stopped with a sudden jerk, but up to that time the Westinghouse brake had not been applied.

*Henry Taylor*, guard, states: I have been 10½ years in the service of the Company, during four years of which I have been a guard. I came on duty at 5.20 a.m. on the 25th April to work till 1.34 p.m. On the 24th I had come off duty at 1.38 p.m. I was rear guard of the 6.50 a.m. up passenger train from Chingford. Up to the time of leaving Clapton nothing unusual had occurred to my train. The brakes of my train were in good order. The first I knew of anything having gone wrong with my train was when we came to a stand outside Hackney Downs Station. Previous to this I had noticed nothing unusual in the running. We came to a stand rather suddenly. We came to such a sudden stand that I knew that something must be wrong, and I at once jumped out and when I found what had happened I went to the rear to protect my train. I noticed that the automatic Westinghouse brake was applied just as my train came to a stand. I can throw no light on the cause of the accident.

*William Newman*, foreman platelayer, states: I have been about 26 years in the service of the Company, and I have been foreman platelayer for about four months. I am in charge of the line from Hackney Downs to Copper Mills Junction, but my section does not include the site of this accident. On the morning of the 25th I was standing near the Queen's Road signal box just inside the mouth of the Hackney Tunnel. I saw the 6.50 a.m. train running past me. Just as the engine passed me I noticed that one of the carriages—about the third from the engine—was about one foot lower than those in front, and when it passed me there was something skidding up the four-foot, causing the dust and stones to fly about. I cannot say exactly what it was that caused this. The carriage seemed straight with the others, with the exception of its leading end being lower. It did not appear to me to be at all slewed across the rails. As soon as the whole train had passed me I went to the signalman and told him that there was something wrong with one of the carriages of the train, and asked him to wire Hackney Downs north to examine the train. I walked up the steps of the signal box and opened the door and spoke to the signalman.

*Richard Tizzard*, signalman, states: I have been 18 years in the service of the Company, during 16 of which I have been a signalman. On the 24th April I came on duty at 10 p.m. to work till 8 a.m. on the 25th. I had come off duty at 8 a.m. on the 24th. I remember the 6.50 a.m. up passenger train on the 25th passing my box, at 7.12 a.m. I saw the train both approaching and passing my box, and I noticed nothing unusual with it. Immediately after the train had passed a platelayer came to the box and told me that there was something wrong with the train, and asked me to call Hackney and tell the signalman to stop and examine the train. I at once did so. I rung up Hackney North on the block instrument to ask the signalman to speak to me on the telephone. He at once came to the telephone, and I gave him the message. He said "all right." The train appeared to me to be travelling at the usual speed.

*James Hart*, signalman, states: I have been 24 years in the service of the Company, during 23 of which I have been a signalman. I am now employed in the Hackney Downs North Junction box. I came on duty at 6 a.m. on the 25th April to work till 2 p.m. I had come off duty on the 24th at 2 p.m. About 7.9 a.m., Queen's Road box called me up to speak to me on the telephone. I went to the telephone instrument at once. He said, "a platelayer informs me that one of the 'carriages of the 6.50 a.m. train is off the road.'" I said, "all right." I turned round at once to put my signal at "danger" so as to stop the train, which I did, but seeing that the engine and two or three coaches were past the signal, I rushed to the window and whistled with my fingers to try and attract the driver's attention, but the next moment the train crashed into the bridge. At the time I received the telephone message my up home signal was off for the train. I noticed that when the train passed through the crossing two or three carriages seemed to be slewed across the lines. The next thing I noticed was that the third carriage from the engine struck the girder of the bridge. As far as I could see the front of the carriage itself did not strike the end of the girder, but the near side of the carriage did do so. I then noticed that though the front portion of the train was on its right line some of the rear portion of

the train was on the down fast line. The front portion of the train then came to a stand just opposite my box. The train was then divided behind the third vehicle. When I first sighted the engine it appeared to me to be running at the ordinary speed for a train which has to stop at Hackney Downs Station. Almost simultaneously with the third carriage rubbing against the girder there was a tremendous crash.

*Oliver Brimm*, foreman platelayer, states: I have been over 20 years in the service of the Company, during 9½ of which I have been foreman platelayer. I am in charge of the portion of the line on which this accident occurred. On the morning in question, at the time when the 6.50 a.m. up train was running into Hackney Downs Station, I was standing just opposite the "through" crossing, on the up slow line. I saw the train approaching me. When the engine was about 40 yards from me, I noticed that the third carriage from the engine was twisted. The leading end of it was about 10 inches lower than the trailing end. Until the carriage got opposite to me it appeared to be running quite parallel to the rails, and not to be at all slewed across the line. As it passed through the crossing opposite to me the leading end of it seemed to get twisted towards the down fast line, but it followed the leading carriages, which were on their right road. I do not know what happened to the carriages behind that one, but after the train was stopped, I saw that the rear portion of the train had run along the wrong line. I did not myself see the rear portion of the train take that line. I cannot say whether more than one carriage was slewed about when the train ran through the crossing. I saw one of the carriages slewing about and I then ran out of the way. Before the train reached the crossing I noticed that the front portion of the third carriage from the engine was bumping up and down. Just previous to the accident I had examined the "through" crossing; it was in good order; and there was nothing in it liable to cause an accident. I did not specially notice anything happening to the third vehicle from the engine, when the train ran through the facing points just previous to reaching the "through" crossing. Just as the engine passed me I shouted out to the driver. He did not seem to hear me; neither the driver nor the fireman appeared to me to take any notice.

*Alfred Percival*, platelayer, states: I have been two years in the service of the Company, during the whole of which I have been a platelayer. I am employed under foreman Brimm, and I was with him on the morning of the 25th when the 6.50 a.m. up train was running into Hackney Downs Station. I was standing just opposite the "through" crossing and I saw the train approaching. I noticed that near the front of the train there was one carriage the leading end of which was down. It was about one foot lower than the other carriages. It did not at that time appear to be slewed across the line at all. I did not notice anything happen to that carriage as it ran through the facing points. Just after it passed through the "through" crossing, I noticed that it appeared to be derailed towards the down fast line. Immediately after this the crash occurred, and I then saw that some of the carriages were on their proper line, and that others were on the down fast line. I did not see any of the train exactly take the down fast line. I shouted out to the driver but he did not appear to hear. The train appeared to me to be going at the usual rate of speed for stopping at the station.

*Mr. James Holden* states: I am Locomotive Superintendent of the Great Eastern Railway. I have examined the broken axle of third class carriage No. 1,857. The axle was one of a hundred that were purchased on November 30th, 1900, from Messrs. Cammell & Co. The axle was made of a kind of very mild steel which is frequently known as homogeneous iron. The diameter of the axle at the centre was 4½ inches. It was to the standard size of our axle. It is the same sized axle that is used for four, six, and eight-wheeled carriages on the Great Eastern Railway. It was close to the centre of the axle that it broke. All homogeneous iron axles are specified to be capable of standing without fracture ten blows from a weight of 2,240 lbs. falling from a height of 20 feet upon the centre of the axle supported upon bearings 3 feet 6 inches apart, and turned after the first blow has been received. Afterwards it is turned after every alternate blow. The material has also to withstand a tensile test of a minimum of 22 and maximum of 26 tons per square inch with no less than 35 per cent. elongation in two inches. It is our custom to test to destruction two per cent. of our axles in this way, and two of the axles of this consignment were so tested with satisfactory results. This axle was first used under carriage No. 1,857 on the 15th December, 1901, and that carriage was brought into use from about that date. The carriage has not been under repair since that date. The wheels were fitted to this axle in July, 1901. The axle and wheels were in stock from July to December, 1901. When the wheels were fitted to the axle they would all have been carefully examined. If there had been any apparent flaw in the axle it would have been noticed when the axle was put in a carriage, as every axle is critically examined before being placed under a carriage. I do not therefore think there could have been any flaw apparent in the axle when it was brought into use. From that time up to the time when the accident occurred, the axle would not have undergone any thorough inspection. No detailed examination would be made of the axle until the carriage came in again to the shops for repair. The carriages are examined at our terminal stations, and if there was any visible flaw in the axle, the carriage examiner would probably see it. There are also examiners kept in the sidings where the carriages stand at night who also examine them. No reports had ever been received with reference to the axle of this carriage. This axle had therefore been in use only about four months at the time of the accident. I have examined the breakage myself. I find a considerable portion of the section flawed with a flaw commencing apparently about one-eighth of an inch under the surface at one point and extending for about two-fifths of the whole area of the axle by what is generally described as a creeping of the flaw, *i.e.*, a gradual extension of the flaw through the division of the molecular structure. About half the area appears to have been of a somewhat longer standing than the remainder, which appears to have gone by much more rapid stages. It is impossible to say definitely what was the cause of the original defect. It may have been a morsel of scoria which was unable to escape to the top, and had been worked up with the steel. It may have been a minute air bladder—a bladder of gas—which had been unable to escape, and which in the working up had caused a small flaw, but so far as one can see it did not extend to the surface, and consequently it would be impossible to discover it. I think even in the latter stages it would probably have been impossible to discover

ft without putting the axle in the fire and afterwards pouring cold water upon it, and it is not certain if that would have revealed it. We are using more generally the "Homo" iron, as it is called, because of its superior quality. I may say that at the time these were bought our contract price for steel axles for waggons and carriages was 11s. 7½d. per cwt. For these "Homo" iron axles we paid 18s. 6d. per cwt. These axles had been specially bought on account of their superiority. I have been with the Great Eastern Railway Company just under 17 years, and I do not remember a case of a carriage axle breaking previously on this railway.

*William Smith*, carriage examiner, states: I have been between 17 and 18 years in the service of the Great Eastern Railway Company, during nearly four of which I have been a carriage examiner. I am now employed as a carriage examiner at Wood Street. I examined the train which left Chingford at 6.50 a.m. on the 25th before it left Wood Street that morning. I found nothing wrong at all with the train. My examination applied almost entirely to the under portion of the train. I did not get underneath the carriages themselves, but I examined the underneath portion of them from both sides. This was just before 5 a.m. At the time I examined the train it was clear enough for me to see it without having to use my lamp. I always make a point when examining the brake working to examine the axles, and I did so on this occasion. I did not notice any flaw in any of the axles, but if there had been a flaw I do not think I could have noticed it unless the flaw had been well opened. It is very unusual to find a flaw in an axle, and I have never found one myself.

*Mr. John Booth* states: I reside at 55, Havant Road, Wood Street, Walthamstow. I was riding in the 6.50 a.m. up train to Liverpool Street on the morning of the 25th April, having got into the train at Wood Street Station. I was riding in the third carriage from the engine. It was a third class carriage, and I was riding in the leading end compartment of it. The first I noticed going wrong with the train was just before we reached the last tunnel. It then seemed to me as if the train ran over something. When going through the tunnel I noticed that the carriage I was in was off the line. The carriage was travelling parallel to the line of rails, but it seemed to be jumping up and down on the sleepers. The bumping continued until we reached the cross-points and then the carriage seemed to swerve from side to side, and I thought that the carriage was going to turn over on to its right-hand side. I was sitting on the right-hand side of the carriage in the direction in which the train was going. I did not myself notice the carriage come into contact with the girder, but I felt the shock of its doing so, and I saw the side of the carriage ripped open. There were 12 passengers seated in my carriage and six or seven standing up. As far as I am aware nobody in my carriage made any attempt to attract the driver's attention. Until I reached the crossing I did not think there was anything seriously wrong with the carriage.

*Mr. J. Herniman* states: I reside at Spruce Hill Road, Walthamstow. I was travelling up by the 6.50 a.m. train on the morning of the 25th. I got into the train at Wood Street Station, and I was riding in the leading compartment of the third carriage from the engine. I was sitting on

the right-hand side, facing the engine. There were 12 passengers seated in the carriage, and about 9 standing. Just before entering the second tunnel it seemed to me as if the train ran over something and left the line. After that it seemed to run smoothly for a few yards and then ran along bumping against the sleepers. I realized that something serious had gone wrong with the train, but I feared that if I said anything I might cause a panic, so I kept quiet. The bumping seemed to continue for about seven or eight seconds until the train reached the crossing just short of Hackney Downs Station. It seemed to me that after this there was simultaneously a tremendous smash and the carriage began to oscillate from side to side. Directly we left the line the carriage appeared to come into contact with the girder, and the side of the carriage was completely ripped away. After that my carriage seemed to come to a stand almost instantaneously. I think that the front of my carriage was off the rails before it came into collision with the girder, but that the carriage was still travelling very nearly parallel with the rails.

*Mr. J. Linstead* states: I reside at Walthamstow, and I was travelling up by the 6.50 a.m. train on the morning of the 25th. I got into the train at Wood Street Station. I was riding in what I think was the third carriage from the engine, and I was sitting in the right-hand corner facing the engine. There were about twelve passengers sitting down in my compartment, and about eight standing up. As we entered Hackney Downs tunnel I noticed a kind of rumbling sound underneath the carriage, and from that point we ran bumping along the sleepers. The bumping continued until we reached a point about half-way between the mouth of the tunnel and the station. At this point the carriage appeared to leave the metals entirely. We went on travelling over the sleepers until the sudden crash came, and the carriage in which I was riding seemed to bump into the one in front of it, and the passengers in my compartment appeared to be shot out the reverse side, and the carriage commenced to break up and to topple over on to its side. When I got out of my carriage it was on the down line. I cannot say for certain whether the bumping occurred to the carriage in which I myself was riding.

*Mr. Robert Jacobs* states: I reside at Badlis Road, Walthamstow, and I was travelling up by the 6.50 a.m. train on the morning of the 25th. I got into the train at Hoe Street Station. I was travelling in the fourth carriage of the train, and I was riding in the fourth compartment of it from the front. I was sitting on the left-hand side of it with my back to the engine. A short distance after leaving Clapton Station we heard a snap, and then there was a slight swaying about. The train continued on, but the swaying increased enormously, and we all held on to the racks to steady ourselves. This continued right up to the time when we reached the crossing short of Hackney Downs Station. When we reached that crossing my carriage seemed to give a big jerk. It seemed to jump up into the air, and I realized from the bumping that we were off the metals altogether. I have an indistinct recollection that the carriage swerved round broadside to the line, but beyond that I cannot say anything more. My carriage did not appear to me to be off the line until we got to the crossing.



*Conclusion.*

There can in my opinion be no doubt that it was at the spot just inside the mouth of the Clapton Tunnel where the broken chair was found that the breakage of the axle occurred, and that the marks found on the sleepers and ballast between that spot and the through crossing near Hackney Downs Station were made by the wheels attached to that axle.

When the break occurred at the centre of the axle the weight of the front portion of the carriage coming on the journals would tend to press the broken ends of the axle upwards and outwards, and the wheels downwards and inwards, and this would continue until the weight was taken by the carriage in front to which it was coupled. This is just what appears to have happened, and the carriage travelled for about 1,000 yards in this position, its trailing wheels being on the line and its leading wheels bumping along in the four-foot way.

This view is confirmed by the evidence of the passengers who were travelling in the carriage, and by that of foreman platelayer Newman, who saw the train just as it was entering Hackney Downs Tunnel.

Up to the time of reaching the facing point near Hackney Downs Station no further damage appears to have been done to the train and comparatively little to the permanent way.

At this point, however, it was inevitable that the derailed wheels should then come in contact, first with the facing point connecting rods and the locking apparatus which was fixed between the rails, then with the right hand rail of the up through line which crossed the path of the up Suburban line, and finally at the through crossing with the rails of the down through line, both of which crossed the rails of the up Suburban line.

At the facing point itself the locking apparatus and the tie rods were considerably damaged, and from the marks in the permanent way just beyond this point, it appears that the leading end of the carriage with the broken axle was swayed about from side to side when its derailed wheels came in contact with the rail of the up through line, and that these wheels were eventually forced over that rail; the facing point itself was not however damaged, nor was its position altered, and the remainder of the train clearly ran correctly through it. Nothing therefore appears to have gone seriously wrong with the train at that point.

At the through crossing, however, which was 35 yards beyond the facing point, it is clear from the wheel marks on the sleepers that the derailed wheels took a turn to the left running for a short distance along the four-foot way inside the rails of the down through line. Though these wheels appear to have been almost immediately pulled back again by the leading portion of the train towards the up Suburban line, there can, in my opinion, be little doubt that the trailing wheels of the third vehicle, following the direction of its leading wheels, took the rails of the down through line at the crossing, and that that carriage was then followed in succession by all the vehicles behind it.

The train was therefore divided at this point, the front portion of it being on the up Suburban line and the rear portion of it on the down through line.

As these two lines gradually separated it was inevitable that either the rear vehicle of the front portion or the leading vehicle of the rear portion or both of them should be forced off the lines on which they were respectively running on to the space between them, and it was thus that the third and fourth vehicles appear to have been derailed in this space. They seem to have been then dragged and pushed along, eventually coming into violent collision with the girder end of the Suburban lines underbridge, thereby causing the injuries to passengers and the damage to rolling stock described above.

The first portion of the train which came into actual contact with the girder end was the front portion of the left side of the third vehicle, which, it is clear therefore, was at that time derailed on that side of the line. The girder end pierced the side of the carriage, and, as the carriage was drawn forward, the whole of its side was ripped off. Up to the time that this carriage freed itself from the girder the coupling between it and the fourth carriage appears to have held, but at this instant it must have broken, as the leading end of the fourth carriage was not dragged beyond that point. The trailing end of the fourth vehicle was, however, pushed forward by the carriages in its rear, and this carriage was consequently driven broadside on into the girder end, its side being thereby staved in. Simultaneously its right hand trailing end was run into and severely damaged by the carriage in rear of it. The breakage of the coupling between the third and fourth vehicles at once applied the Westinghouse brake throughout the whole train, and

it appears to have acted very effectively, bringing the two portions of the train to rest and considerably minimizing the disastrous effects of this accident.

Three platelayers, who were standing opposite the through crossing, and the signalman in the Hackney Downs box witnessed the actual occurrence of the accident. None of them can, however, state exactly what happened to the different portions of the train at the through crossing, but their evidence generally supports the view taken above.

The splitting and derailment of this train can be thus entirely accounted for by the breakage of the axle, and that must therefore be regarded as the original cause of this accident.

The axle in question, which was  $4\frac{1}{8}$  inches in diameter at its centre, was made of a mild steel, which is commonly known as homogeneous iron, and it was one of a consignment of a hundred which were purchased by the Company from Messrs. Cammell & Co. in November, 1900. These axles had been specially bought at an exceptionally high price from Messrs. Cammell on account of their superior quality. It is the custom of the Company to test to destruction two per cent. of the axles purchased by them, and two axles of this consignment are stated to have been so tested with very satisfactory results. Wheels were fitted to this axle in July, 1901, when the Company state that it would have been carefully examined, and the axle was put into the carriage on the 15th December, 1901, on which occasion it would have been again critically examined. It was taken into use soon after the last-mentioned date, so that at the time of the accident it had only been in use about four months. It had never been back again in the shops for repair since going out on the line, so the only examinations it would have undergone since that time would have been those of the carriage examiners at the sidings and at the terminal stations. No report was ever made by these examiners of any defect in this axle, and the carriage examiner who examined it at Wood Street on the morning of this accident had not detected anything wrong with it.

The fracture showed unmistakable signs of a flaw, which was undoubtedly the ultimate cause of the breakage. The flaw appears to have originally formed at a short distance below the surface, and to have extended towards the centre until it covered about two-fifths of the area of the section. The latter part of the spreading appeared to have taken place rapidly, the final break evidently occurring quite suddenly.

At the time that the flaw originally formed it appears certain that it could not have been detected by an exterior examination, but whether subsequently there had been any external evidences of its existence it is now impossible to say.

No blame can therefore, in my opinion, be attributed to any servants of the Company in connection with this accident, but the occasion is taken to point out, as indeed has been pointed out before, that it is very unsatisfactory that no method has yet been devised by means of which it can be ascertained whether an axle is structurally perfect throughout. Some method by which flaws, such as that which led to this accident, can be detected is much needed.

It is also worthy of remark that had this train been provided with means of inter-communication the serious results of this accident would almost certainly have been averted, as the passengers in the carriage with the broken axle would probably have utilized them after the axle broke, and the train would consequently have been brought to a stand before it reached the crossing at which it divided.

I am informed by the Company that they are at present engaged in fitting the whole of their stock with the form of apparatus recently approved by the combined Railway Companies, so that it will gradually be provided on all trains irrespective of the distances which they are running without a stop. This accident undoubtedly points to the desirability of this being done.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
*Lieut.-Col., R.E.*

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#### APPENDIX.

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##### *Statement of Damage to Rolling Stock.*

Third-class carriage, No. 1,851.—Step-board broken; draw-bar and coupling bent.

Third-class carriage, No. 1,857.—Damaged beyond repair.

Third-class carriage, No. 1,848.—Damaged beyond repair.

First-class carriage, No. 518.—One corner of body broken in and end of underframe bent.

First-class carriage, No. 519.—One body end broken through.



Second-class carriage, No. 548.—One axle box, 2 wheel bolts, 2 step-boards, Westinghouse brake pipe, and 1 facia panel broken; 1 coupling, 1 buffer and 1 draw-bar bent; tyres bruised.

Second-class carriage, No. 547.—One step-board broken; 1 buffer bent.

*Damage to Permanent Way.*

Ninety-seven chairs broken; 40 check chairs broken; 12 crossing chairs broken; 3 30-foot rails broken; 2 17-foot wing rails broken; 1 diamond crossing destroyed; signal rodding destroyed; 1 girder end severely injured.

Printed copies of the above Report were sent to the Company on the 11th June.

LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
June 7th, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with your Order of the 26th May, the result of my inquiry into the causes of the collision, which occurred on the 22nd May, between a passenger train and buffer stops at Exchange Station, Liverpool, on the Lancashire and Yorkshire Railway.

In this case the 8.40 a.m. passenger train from Hall Road to Liverpool came in contact with the hydraulic buffer stops at the end of No. 10 road at the Exchange Station.

The train in question consisted of a four-wheels-coupled radial tank engine running bunker first, fitted with automatic vacuum-brake and hand-brake working the same blocks on the four coupled wheels, and of the following 14 vehicles in order named :—

					Wheels.
Third and van	...	...	...	...	6
Second-class	...	...	...	...	4
First-class	...	...	...	...	6
Third-class	...	...	...	...	6
Van	...	...	...	...	4
Two second-class	...	...	...	...	4
Three first-class	...	...	...	...	6
Three third-class	...	...	...	...	6
Third and van	...	...	...	...	6

These were fitted with the automatic vacuum-brake on all wheels except the centre pair of the six-wheeled vehicles, and the vans had the usual hand-brakes. All the brakes are stated to have been in excellent order. Eight of the carriages were fitted with short buffers.

Several passengers complained of slight injuries.

No damage was done to the engine and permanent way, but the valves of the buffer stops were injured.

Details of damage to rolling stock are given in the Appendix.

*Description.*

For incoming trains, No. 10 road in the station, which is alone concerned, is on a falling gradient of 1 in 263 for the last 11 chains to the buffer stops, and this is the length of the platforms, which are entirely covered in.

Beyond this the line is on a falling gradient of 1 in 166 for 4 chains, and beyond that practically level. Signal-box "A" is at the commencement of the 1 in 166 gradient, i.e., 15 chains from the buffer stops, and cabin "B" is 11 chains further away.

At 200 feet away from the buffer stops are the points of a crossing to No. 9 road.

It was raining hard at the time of the accident, but the rails in the station being under cover would be fairly dry.

*Evidence.*

Mr. Wood, station-master, Liverpool, stated : When the 8.40 a.m. Hall Road to Liverpool passenger train was arriving on the west lines, on May 22nd, I was standing outside our east main line inspector's cabin, and I noticed the train as

it was going past "A" signal box, and it appeared to me to be travelling too quickly, hence I tried to attract the attention of the driver and fireman by shouting, but apparently was unable to do so as they would only have a momentary view of me as

they passed behind some coaches standing between me and the train. It was a wet morning but the rails in the station were dry. The hydraulic buffers at the end of No. 10 road were in good working order and in a proper position prior to the arrival of the train from Hall Road. From the speed of the train when I saw it passing "A" signal box, I anticipated an accident. I heard the contact of the engine with the buffers, and as speedily as possible went to the train and rendered all the assistance I could to the passengers who were injured. I asked the driver what was the matter, and he said "The wheels skidded and I ran into the buffers."

*Mr. James*, inspector, Liverpool, stated: When starting the 9.7 a.m. train to Ormskirk from No. 8 road, I saw the train due at 9.6 a.m. from Hall Road arrive in No. 10 road. When the train was near the subway, carriage examiner Holt called out that "he was running in quick." I blew my whistle, but the driver and fireman were occupied with their engine. The whole of the wheels were skidding, but the engine ran into the patent hydraulic buffers (which were out at the time) with considerable force, causing injury to a number of passengers and damage to stock. I at once summoned the ambulance and rendered all possible assistance to the most needy cases. The injuries consisted chiefly of slight concussion and bruises and shock. I went to the driver after the accident and asked him how the accident had happened and he said that "the engine had picked up her wheels and shot into the buffers," and I remarked to the driver that I thought he had come in too quickly. I asked guard Shepherd if he had noticed the train coming in at too great a speed before it entered the station, and he replied that he had not. I asked him if he had his hand-brake on and he told me he had applied the hand-brake at "B" cabin. I asked guard Dodd if he had applied his hand-brake, and he replied he was not sure as he did not recollect what had occurred after passing "B" cabin. A little more than half the train passed me before it came to a stand, and I noticed that all the wheels of that portion of the train were skidding.

*John Cottam*, signalman, Exchange "A" cabin, stated: I am 43 years of age, have been 25 years in the service, 21 years as signalman, and seven years at "A" box. I was in charge at "A" box from 6 a.m. to 2 p.m. on May 22nd, having finished at 2 p.m. on the previous day. I received the "Is line clear" for the 8.40 a.m. Hall Road to Exchange passenger train at 9.2, and acknowledged it at 9.3. Received "Train entering section" signal at 9.6., and the train arrived at my box at 9.7. There was a clear road for it and all the signals were off. I noticed the train passing my box, and it seemed to be going faster than trains usually do when passing my box, but I did not anticipate any mishap.

*George Shepherd*, guard, Liverpool, stated: I am 60 years of age, was re-engaged in the service from 15 to 17 years ago, and have been a guard nine years. On May 22nd, I was acting as assistant guard in the front van of the 8.40 a.m. passenger train, Hall Road to Liverpool, having commenced at 7.45 a.m. to work until 7.15 p.m. I had finished at 7.15 p.m. on the night before. On approaching Liverpool all the signals were off between Sandhills and Liverpool "A." On passing "B" box I put my hand-brake partly on and almost immediately noticed the driver applying the vacuum slightly. In my opinion the driver entered the station at the ordinary speed, and there was nothing in the style of running to

lead me to suppose he would not be able to stop before reaching the buffers, although I put my hand-brake hard on when the van reached the platform, as it was a wet morning. I noticed from the vacuum gauge that the driver applied the vacuum several times. I did not realise the driver had not proper control of his train, and that there was a likelihood of the engine colliding with the buffers until the engine was about three or four carriage-lengths from them, and at that time the driver had exhausted the vacuum. I called the attention of the Ormskirk guard Lyon, who was waiting to take hold of the train to work it to Crosby at 9.15 a.m. to witness that my brake was hard on. After the mishap, my attention was called to some passengers who appeared to have been injured, and I rendered what assistance I could until it was time for me to take up the working of the 9.30 a.m. Liverpool to Southport. I had no conversation with the driver at the time, but on returning into Liverpool at 11.33 a.m., and after making my statement in Mr. Nicholas's office, I spoke to the driver and we agreed that we were coming in at the usual speed up to the platform. Having set myself, when the impact took place, I did not feel any shock. It was raining hard outside, and the rails were rather damp in the station.

*John Dodd*, guard, Liverpool, stated: I am 45 years of age, have been in the service 15 years, and a guard 10 years. On May 22nd I commenced duty at 8 a.m., and travelled as passenger to Hall Road to work as guard in charge of the 8.40 a.m. Hall Road to Liverpool, having finished duty at 8 p.m. on the 21st inst. I rode in the rear van. On approaching Liverpool the whole of the signals were off for us between Sandhills and Liverpool. The train crossed Exchange Junction at the usual speed, and I cannot say when the driver applied the vacuum brake, or if he did so, as on passing the distant signal for "B" box and observing all the signals were off into the station I went to the bench and commenced to make out the driver's voucher. I did not realise anything unusual until the collision occurred, when I was thrown against the partition. I did not take particular notice of the speed on passing "B" box, but the train did not appear to be proceeding at more than the usual speed. I did not carry out the instructions for entering terminal stations, or apply the hand brake at all, as I did not consider it was necessary, taking into consideration the speed at which the train crossed Exchange Junction, and that there was a clear path into the platform. I felt very little effect of the accident at the time, and went forward in charge of the 9.30 a.m. Liverpool to Leeds, but on arrival at Sowerby Bridge became worse. I managed to work the return trip from Leeds into Liverpool at 4.15 p.m., but did not feel fit to continue. I did not notice that the wheels were skidding as we entered the station, and I did not realise that the driver was unable to stop. The first intimation I had of anything being wrong was when I was thrown against the partition between my van and the next compartment. I received a shock, and was unable to render any assistance prior to my taking charge of the 9.30 a.m. Liverpool to Leeds. I still feel a little shaken, but otherwise no worse for the accident. I tested the brake before leaving Hall Road. There were 18 or 19 inches of vacuum.

*Charles S. Holt*, carriage examiner and repairer, stated: I am 39 years of age, and have been in the Company's service 17 years. I signed on at 6.15 a.m. to work until 6.15 p.m., less 1½ hours for meals, and finished at 6.15 p.m. on the pre-

vious night. I was in the front van of the 9.30 a.m. Leeds train trying the brake, the van being in No. 8 road half way down No. 5 platform. I had just turned the brake off when I noticed the train in question coming down No. 10 road at a much greater speed than usual, much over hand brake speed. I rushed on to the platform and called out to the driver "Steady." Inspector James asked me what was wrong, and just as I pointed out the train it collided with the buffers. I immediately went over to No. 10 road to examine the vacuum brakes of the 9.6 a.m. train, and found them all on. They were holding on fully 15 minutes afterwards, and Mr. Stockton and myself released them by the wires. I examined the hand brakes on the front and rear vans later in the day, and they were both in working order. I also examined the blocks before the train left for Southport, and there were no signs of them having been heated. Just as the engine, which was running bunker first, passed me I noticed the fireman, who was looking ahead and had apparently perceived the danger, immediately turn round and apply his hand brake. I heard the wheels skid on full van 225, the fifth vehicle from the engine, but I cannot say whether any more were skidding or not.

*John Price*, carriage examiner, stated: I am 35 years of age, and have been in the Company's service 17 years. On May 22nd I signed on duty at 6 a.m. to work until 6 p.m., less 1½ hours for meals, having signed off at 6 p.m. on the previous night. I was standing in the six-foot between Nos. 9 and 10 roads about five carriage-lengths from the buffers when the train passed me. I was booking the numbers of the coaches, and I looked up after two or three coaches had passed me and thought the train was going too fast. The fireman appeared to realise the danger at the same time, for I saw him put his hand brake on. Some of the wheels were skidding.

*David Jones*, driver (Sandhills), entered service March 24th, 1880, booked driver November, 1896, 44 years of age, stated:—I signed off duty at 7.25 p.m. on Wednesday, the 21st May, and signed on again on Thursday, the 22nd May, at 7.10 a.m., to work until 10.25 a.m. I was working the 8.45 a.m. Hall Road to Liverpool with engine No. 208, which is a four-coupled radial tank engine with automatic vacuum brake on the four coupled wheels; this can also be worked by hand. I stopped at all stations from Hall Road; tickets were collected at Sandhills as usual, and we left there at 9.3 a.m., and the train had a clear road with all signals off into Exchange Station, Liver-

pool, where we arrived at 9.7 in No. 10 road. The train consisted of 14 coaches. I shut off steam when approaching "B" cabin, at which time I should be travelling at about 20 miles an hour. I applied the vacuum brake between "B" and "A" cabins, reducing the speed to about eight miles an hour. My fireman put on the hand brake when we entered the platform. I applied the power brake about three times again while running down the platform. Just as I reached the cross-over road from No. 10 to No. 9 road the fireman opened the sanders, and I then put the vacuum handle right down, applying the brake to full extent. As soon as I did this the engine wheels skidded, and we ran into the hydraulic buffer stops. I estimate the speed at this time was about four miles an hour. The rams of the hydraulic buffer stops were jammed hard up. There was no damage done to the engine, nor was either the fireman or myself injured in any way. I believe the coaches were buffer-locked in two places, but I do not know to what extent they were damaged. I had every confidence in stopping until I got over the crossing points, but I can only admit I was not entering the station at hand brake speed, and I attribute the accident to this. I did all I could when I noticed the danger, and am very sorry it has occurred. The brakes were in first class order, and I had experienced no difficulty in stopping previously.

*S. Howden*, fireman (Sandhills), entered the service June 12th, 1889, booked fireman, October 3rd, 1895, stated:—I worked with driver Jones on May 21st, and signed on again with him at 7.10 a.m. on the date of the accident. After leaving Sandhills the driver shut the regulator when approaching Exchange "B" cabin home signal, and we were coming just as usual. I applied my hand brake on entering the platform, and did not think anything was wrong until we were about three coach-lengths from the buffer stops, when I opened the sanders, as I thought we were not going to stop in time. My driver had applied the power brake at first, just as he shut off steam, and to the full extent just when passing over the points leading to No. 9 road. My driver did not tell me to open the sanders. I am sure I had my hand brake on properly. When approaching the subway I applied my hand brake still harder, and again when the driver applied the vacuum brake harder. I know we were entering the station at too high a speed to be able to pull up with the hand brake only. We had no difficulty in stopping either at Sandhills or any other station.

### Conclusion.

The evidence in this case is consistent and clear. Driver Jones admits that he was not entering the station at hand-brake speed, and the witnesses on the platform concur that the speed of the train was higher than usual, and some tried to attract the driver's attention, as they anticipated a collision with the buffer stops.

Driver Jones states he shut off steam when approaching "B" cabin, which is 26 chains from the buffer stops, when he was running at a speed of 20 miles an hour, and that he applied the vacuum-brake between "B" and "A" cabins, or about 20 chains from the buffers, reducing the speed to about eight miles an hour, and that he also applied the vacuum-brake two or three times while running down the platform, further reducing the speed. When reaching the points leading to No. 9 road, or 200 feet from the stops, he states he put the vacuum brake on to its full extent; but the wheels skidded and the momentum of the train carried it forward to the buffer stops at a speed of about four miles an hour. He states he had every confidence in stopping until the

wheels skidded. But he entered the station at too high a speed, and accordingly must bear the blame for the mishap.

The blow on impact was much reduced by the buffers being hydraulic, and no doubt the majority of the injuries were due to the fact that the passengers were mostly standing up preparing to leave the carriages on arrival at the station.

Guard Dodd, who was in charge of the train, is also to blame for not watching the speed as it was entering the station, and for not using his hand-brake, which he admits he did not apply at all.

I have, &c.,  
E. DRUITT,  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## APPENDIX.

### DAMAGE TO ROLLING STOCK.

Third-class, No. 2,480.—One bottom quarter panel broken, 4 end panels, 1 end pillar, 1 vacuum brake train pipe clip, 1 flooring board, and 1 end bottomside all broken; two buffers bent and 1 dummy plug minus.

Third-class, No. 179.—One buffer bent.

Third-class, No. 1,091.—Four buffers bent.

First-class, No. 108.—Three buffers bent.

Second-class, No. 72.—Two buffers bent and 2 middlebearers broken.

First-class, No. 358.—One headstock and 2 buffers slightly damaged, 2 buffers bent, 1 buffer block broken, 1 brake block hanger casting and

1 tie rod set screw broken, 1 buffer casting bolt minus.

First class, No. 350.—Two buffers bent.

First class, No. 361.—Two buffers bent, 1 buffer broken, 1 buffer block, 1 buffer casting broken, and body shifted.

Third class, No. 2,090.—One end panel damaged and 4 buffers bent.

Van, No. 226.—One buffer bent, 1 buffer broken, and 1 leg iron bent.

Second-class, No. 111.—Two buffers bent and body shifted.

Second-class, No. 112.—One buffer bent and body shifted.

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Printed copies of the above Report were sent to the Company on the 23rd June.

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## NORTH-BRITISH RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
21st June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 24th May, the result of my inquiry into the causes of the collision which occurred on the 14th May, about 6.30 a.m., between a passenger train and a derailed waggon at Polmont on the North-British Railway.

In this case, an engine was propelling two cattle waggons on the up line, when the leading waggon became derailed and struck the carriages of a passenger train which at that moment was passing the spot on the down line.

The passenger train (5.30 a.m. Edinburgh to Glasgow) consisted of a four-wheels-coupled tender engine with a bogie leading, and eight six-wheeled coaches with one six-wheeled brake van. It was fitted throughout with the Westinghouse automatic brake actuating blocks on the four coupled and six tender wheels of the engine, and on 36 out of 54 of the coach wheels.

The goods engine was a six-wheels-coupled tender engine fitted with the Westinghouse and hand brakes.

The passenger train had but just started from Polmont station and its speed fortunately was therefore low, so that the results of the collision were inconsiderable.

Complaints of injury have been received from ten or twelve of the passengers.

Particulars of the damage to plant are given in the Appendix.

*Description.*

The scene of this accident is about 180 yards west of Polmont station, and about 125 yards east of Polmont junction signal cabin where the lines from Falkirk and Grahamston meet.

There are two main lines for up and down traffic between Polmont station and Polmont junction. These have a general east and west direction, and are practically straight. These main lines are spanned by a bridge, carrying a public road over the railway, which is situated about 40 yards west of the site of the collision. East of this bridge there is on the north side of the running lines a loading bank siding to which access is obtained from the up main line through facing points situated 10 yards east of the road bridge. This siding terminates to the west at the bridge abutment with a short dead end siding. The space between the siding and the up main line is about 6 feet 4 inches, and there is the usual 6 foot way between the rails of the up and down main lines.

The lines fall from Polmont junction towards Polmont station at an inclination of 1 in 600.

The view of the loading bank siding from Polmont junction signal cabin is somewhat circumscribed by the above-mentioned intervening overbridge. But from the west end of Polmont station there is no obstacle to obscure the view of all the lines westward as far as the bridge.

The pole authorized for use by the Company in "pushing" or "propping" operations measures 10 feet 4 inches in length and has a diameter of 4 inches. The pole used on this particular occasion was not forthcoming, and was stated to be about 7 feet in length and 6 inches in diameter.

The following regulations regarding the use of pushing sticks is to be found on p. 51 of the Company's Appendix to Working Time Tables :—

**Goods Guards, Shunters, and others using Pushing-Sticks.**—1. Several of the Company's servants have sustained injury while in the discharge of their duty, through using pit props, &c., for pushing-sticks, instead of the pushing-sticks provided for the purpose.

2. It must be distinctly understood that the servants must not use any other stick for pushing purposes other than that supplied by the Company.

3. Station-masters, Inspectors, and others, must see that the foregoing instructions are strictly carried out, and they must report every instance of irregularity in the use of pushing-sticks which may come under their notice.

*Evidence.*

*David Robertson*, signalman, states: I have been employed by the North British Railway for 24 years as signalman, and have been at Polmont Junction for 19 years. My hours of duty on the 14th May were from 6 a.m. till 2 p.m. The pilot engine from Boness Junction arrived at Polmont at 5.20 a.m. It proceeded to the loading bank on the upside to carry out shunting operations. It is due to leave Polmont Junction as a goods train about 7.5 a.m. About 6.25 a.m. the engine whistled to get out of the loading bank on to the up main. I let the engine out on to the up main, and it whistled again for me to shift the points. I know nothing more of the movements of the engine until I heard it giving a series of short whistles to attract the attention of the passenger train. I looked out and saw the passenger train come to a stand, and concluded that something was wrong. I then went out of the cabin to the scene of the accident, and found a cattle waggon fouling the passenger train. I heard from my mate that one passenger had been injured. I know that propping is occasionally used to get waggons out of the dead end siding.

*Peter Barron*, engine driver, states: I have had 12 years' service as driver. My hours of duty on the 14th May were from 6.30 p.m. until 6.30 a.m. My engine on the day in question (No. 267) was a six-wheeled-coupled tender engine, fitted with the Westinghouse and hand brakes. I ran light from Boness Junction to Polmont, where I

arrived about 5.20 a.m. I went up to the loading bank waiting for the guard, who was due at 6 a.m. On the arrival of the first guard he coupled two cattle waggons, which were standing at the loading bank. The guard went up and told the signalman we were coming out to stick the three waggons at the dead end into the bank. I then whistled for the points, and we came out on to the up main, after getting a hand signal from the box. I then whistled off the points, and proceeded to stick the waggons back. The second guard had arrived in the meantime, and he held the stick, giving me the usual signal when the stick was fixed. I cannot say whether the stick was the ordinary one used. Both the guards shortly after held out their hands, and one or both of them whistled for me to stop. Immediately I heard the whistle I shut off steam and applied the Westinghouse brake. I knew nothing more until I felt a check to my engine, due to the cattle waggon fouling the passenger train. I looked out and saw the waggon off the rails, with one end touching the passenger train. I have only once before propped waggons out of this dead end. Almost immediately after the accident happened I was relieved by driver White.

*David Lewis*, fireman, states: I have about four years' service as fireman. I was due on duty on the 14th May at 6.30 a.m., and was due off at 6.30 p.m. I found the engine and driver Barron just west of the bridge, and I relieved his fire-

man. After getting on to the engine I did not see the guards, but I heard the driver repeat the whistle to stop the engine. I saw nothing until the passenger train came to a standstill. Once or twice a week I have seen a waggon or more propped out of the dead end. I have seen waggons tow-roped out.

*James McKenzie*, goods guard, states: I have 10 years' service with the Company, all as a goods guard. My hours of duty on the 14th May were from 6 a.m. till 6 p.m. I found the engine at the loading bank when I came on duty. I have to take out the empty waggons from the bank and put in the loaded ones. I coupled up two empty cattle waggons, and then came out and told the signalman I was coming out over the bank points to stick a brake van and two loaded waggons into the bank. These were standing in the dead end. I then went back to my van, which was the one in the dead end, and the engine came out. I saw the second guard coming out on the engine. He got off the engine and got the stick from the van. It was an ordinary pit-prop, about 8 feet long. I have used it for some months. It is shorter than the ordinary propping stick, and for that reason it is more convenient, as it will go into a goods van, which the ordinary stick will not. It was about 6 to 9 inches in diameter. This stick is more useful than the ordinary stick in colliery sidings where there is less than 6 feet between the roads. There are two or three pushing sticks provided at Polmont Yard, which is some little distance away. I did not know there was one on the main road close to the signal cabin. If I had known of this I should have used it. The instructions of the Company forbid the use of the short pushing sticks, as they are supposed to be more dangerous than the longer ones. I have often used the short stick without any ill results. I think tail-roping is safer than pushing, and have tailed waggons out of the bank siding dead end. The tail-rope had been broken, and had not been replaced, possibly because I had not reported the breakage. My mate and I both gave a signal for the engine to stop and release the stick. I saw my mate stumble and fall almost immediately after giving the signal. I saw one end of the stick catch one of the chairs on the south rail of the siding, and the other end struck the leading axle-box of the leading cattle waggon, which was derailed into the six-foot way, and the right hand leading corner came into collision with the passenger train, which was travelling on the down road. If my mate had not stumbled and fallen, no accident would have happened. There are no specific instructions as to the employment of tail-roping in preference to pushing waggons in such a case.

*Robert Wilson*, second goods guard, states: I have about six years' service with the Company, and have been a second guard since last October. I came on duty at 6 a.m., and was due off at 6 p.m. I joined the engine at the bridge and the head guard told me we had to stick two waggons and the brake van into the loading bank, and he put the stick out of the van. I put one end of it against the buffer beam of the waggon and signalled to the driver. I then fixed the other end to the buffer beam of the cattle waggon, and gave the driver a second signal that all was right. I had to run to keep up with the movement of the waggons, and as I was going to give the signal to stop I stumbled over something and fell, letting go of the stick. At the same moment I shouted.

I saw the end of the stick drop to the ground and get hitched against something. The other end also dropped, but did not fall to the ground, as the centre portion was supported by one of the rails of the crossing. The end in the air struck the axle-box of the leading cattle waggon and derailed it. The pole was between 7 and 8 feet in length, shorter than the one provided by the Company. I have heard tell of a regulation forbidding the use of the short pole. I knew there was a Company's pole at the west end of the goods yard, but I have not used it at the loading bank. I have never tail-roped waggons out of the siding. I have not seen the rule in the Appendix referred to.

*Alexander Muirhead*, engine-driver, states: I have about 28 years' service—about 24 years as a driver. I came on duty at 4.30 a.m. on the day in question, and was due off duty about 4 p.m. My engine (No. 264) was a four-wheels-coupled tender engine with bogie leading. It was fitted with the Westinghouse brake applied to the six tender and four driving wheels. The brake was in good working order. The signals at Polmont were all in the clear position when I came into the station. On receiving a signal from the guard, I started from the station. I saw the engine and two cattle waggons on the up line. The cattle waggon was not off the rails when I passed them, and there was nothing to attract my attention. I felt a slight check shortly afterwards as if someone had applied the continuous brake. I looked back on the left side from which I was driving and saw nothing. I then went over to the fireman's side, and saw that a cattle waggon was fouling one of the passenger carriages. I went over, shut off steam and applied the Westinghouse brake. She ran, I think, about three engine-lengths before coming to a dead stand.

*David Hunter*, passenger guard, states: I have 20 years' service—eight years as a passenger guard. I came on duty at 9.30 p.m. on the 13th May and was due off at 9 a.m. on the 14th May. I was working the 5.30 a.m. passenger train from Edinburgh to Glasgow on the morning in question. The train was composed of the following vehicles:—

	Wheels.
2 first-class coaches ... ..	6
4 composite coaches ... ..	6
4 third-class coaches ... ..	6
1 brake van ... ..	4
1 brake-van ... ..	6

Twenty-four pairs of wheels out of thirty-five were fitted with blocks actuated by the Westinghouse brake. At Linlithgow I dropped one composite, one third-class and one brake-van with four wheels. We arrived at Polmont about 4 minutes late and the signals were all "off." I gave the driver a signal to proceed, and got into my van. I was not looking out of my window and was aware of nothing wrong until the train came to a stand. When I felt the brakes applied I looked out first from the left-hand window and, seeing nothing, I went across to the other side and saw a cattle waggon fouling one of the coaches. I felt nothing worse than what would be caused by the rapid application of the brakes. I got out of my van and a lady in the third carriage behind the engine complained of having been injured from the glass in the window being broken. There were about a dozen passengers in the train.

*Conclusion.*

As described in the evidence, this accident was caused by the derailment of a cattle waggon during shunting operations on a passenger line.

The derailment may be directly ascribed to the fact that guard Wilson whilst holding a pole in position during a "sticking" or "propping" operation, stumbled over a crossing and fell. In so doing, he allowed the pole to fall to the ground. One end of the pole became jammed against one of the chairs or rails on the siding road, and the other end struck the axle box of the leading cattle waggon moving on the up line thus causing the waggon to be derailed into the six foot way.

The accident throws fresh light on the dangers that exist with this method of working vehicles out of a siding.

The liability to injury of railway employes whilst engaged in propelling waggons by means of a pole has been recognised, and rules have been proposed by the Board of Trade under powers conferred by the Railway Employment (Prevention of Accidents) Act of 1900 to obviate this liability.

But so far the danger to passenger trains from an accident caused by this method of goods working has not, I think, been taken into account.

Of the two methods in use on railways, viz. "roping" and "propping", both are dangerous to the men engaged in the operation. But there can be no doubt that the use of a pole in "propping", as evidenced by this case, is the more likely to lead to a derailment and a consequent collision with a train moving on an adjoining road. On this account, of the two methods of working the latter may certainly be described as the more objectionable.

The evidence shows that both guards McKenzie and Wilson were disobeying the Company's regulations in making use of the short pole instead of the longer one provided for the purpose. In so doing, they were, I think wilfully incurring additional unnecessary risk to themselves in the operation. For a pole so short as seven or eight feet used between roads six feet or more apart will be more liable to slip than a longer one, as the thrust is less direct.

At the same time, I do not think that the use of a longer pole in this instance would have prevented the derailment and collision. For, once the support given by the man holding the pole in position was withdrawn owing to his stumbling and falling, it appears probable that either a short or long pole might have fallen into such a position as to cause a derailment.

I come to the conclusion that the accident was caused by the use of a propping pole during shunting operations on a passenger line, and I do not hold any of the Company's employes responsible.

The method of working is at fault, and the discontinuance of the method, at all events on a passenger road, is very desirable. The addition of a cross-over road at the east end of the loading bank siding would appear to be the best method of obviating the use of both roping and propping at this place.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### APPENDIX.

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##### PARTICULARS OF DAMAGE TO ROLLING STOCK.

North British Composite, No. 174.—1 step-board and 2 step-hangers destroyed; 2 step-hangers damaged; 1 commode, 1 door-handle, and 3 door-hinges destroyed; 1 body-glass and 1 door-glass broken; 1 waist-panel, 1 door-panel, and 1 door-pillar destroyed; 1 corner-pillar and one lamp-iron damaged.

North British Third, No. 1522.—1 step-board, 1 end-quarter, 1 door, 1 end-panel, 2 headstocks, 1 bottom-quarter, and 1 door-panel destroyed;

4 door-hinges, 5 commode-handles, and 1 step-board damaged; 1 end-handle, 2 body-glasses, and 1 door-glass broken.

North British Third, No. 1045.—2 end-quarter and 4 bottom-quarter panels, 5 door-panels, and 2 commode-handles destroyed; 3 commode handles damaged; 4 door-hinges destroyed; 2 corner pillars, 9 standing pillars, and 9 door-pillars damaged; 1 end-panel destroyed; and 1 step-board damaged.

North British First, No. 185.—5 bottom-quarter panels and 4 bottom door-panels destroyed, 2 corner-pillars, 8 door-pillars, and 8 standing-pillars damaged; 4 bottom-hinges and 1 com-mode-handle destroyed; one step-board damaged; and one end-panel destroyed.

North British Composite, No. 18.—1 stepboard destroyed; 1 stepboard, 6 door-hinges, and 1 door-pillar damaged; and 15 bottom-mouldings destroyed.

North British First, No. 90.—1 end-bottom quarter panel, 4 bottom quarter-panels, 4 bottom door-panels, and 4 door-hinges destroyed; 5 standing-pillars, 5 door-pillars, 1 stepboard, and 1 corner-pillar damaged.

North British Cattle-waggon, No. 62,774.—1 roof-board, 1 headstock, 1 buffer-block, 1 corner-post, 1 end-board cleading destroyed; 1 angle-iron, 1 end-knee, 1 end washer-plate, 1 brake-guide, 1 brake-lever, and 1 buffer-rod damaged.

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Printed copies of the above Report were sent to the Company on the 17th July.

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## APPENDIX B.

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### REPORTS OF THE ASSISTANT INSPECTING OFFICERS OF RAILWAYS ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

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#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
27th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 13th, the result of my inquiry into the causes of the accident which occurred on the 26th April to shunter Alexander Dick, at Sighthill West Junction, Glasgow, on the Caledonian Railway.

Dick was riding on the foot-plate of a light engine which had been run down the loop line and brought to a stand clear of the outlet points to the main line.

After the engine had stood about 15 minutes the points were opened and the signal lowered, but just as the engine was started by driver Taylor, the points were reversed and the signal thrown to danger, and as Taylor failed to notice the alteration the engine ran into a stop block which was some 40 yards ahead, and Dick was thrown down and received injury to his left shoulder.

It is stated that the recognised intimation of two whistles for outlet to the main line was given by the driver when the engine first came to a stand, but signalman Pringle, who was in the cabin about 145 yards distant, failed to hear it. As it is usual to run engines down the loop for other purposes Pringle had no assurance that it was desired to run this engine out on to the main line, and his action of setting the points and drawing the signal appears to have been done with the object of seeing whether the driver would accept the signal or not.

I consider Pringle was remiss in failing to assure himself that the engine required outlet to the main line before making any movement of the levers, and I also think Taylor should have repeated the whistles after standing for such a length of time. The accident therefore appears to have been due to a certain laxity in working, which will, no doubt, have the Company's attention.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
9th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of May 27th I have held an inquiry into the circumstances attending the accident which occurred on May 6th at Greenhill, on the Caledonian Railway, whereby labourer Robert Halliday was injured.

About 9.20 a.m. two 30-ton waggons were being placed in position for being loaded with sleepers from two creosoting tanks. The waggons were coupled together by means

of a long chain, the first waggon being hauled by a wire rope worked from a stationary engine. The waggons are fitted with brakes operated by a wheel, and Halliday was in charge of the brake on the first waggon. The chain between the waggons was not properly secured, and consequently the first waggon was drawn forward rather too sharply. While endeavouring to apply the brake Halliday was caught between the waggon side and a pillar of the loading shed, and was bruised on the chest and shoulders.

The clearance between the waggon and the pillar was only 12 inches, but the Company have agreed either to increase this clearance sufficiently to enable the men to use the brakes in safety, or to make such arrangements for placing the waggons in position as will render the use of the brakes unnecessary.

I have, &c.,  
J. H. ARMYTAGE,

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

9th June, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 27th, I have held an inquiry into the circumstances attending the accident which occurred on May 10th, at Auchenraith Colliery, near High Blantyre, whereby brakesman William Carruthers was injured.

Carruthers is in the service of the Caledonian Railway Company, and was in charge of a train of 47 empty waggons for the colliery. The colliery belongs to Messrs. Merry and Cunninghame, Limited, and in accordance with a request from James Lyon, their surface overseer, the train was propelled into No. 4 siding about 6.40 a.m. It is not usual for empty waggons to be shunted into this siding, which was in a bad state of repair. As a result of this the leading waggon left the rails and struck a corner of the joiners' shop. The waggon fell on its side, and Carruthers, who was riding in it, had his left ankle bruised.

It was stated by Mr. Menzies, the colliery manager, that Lyon was to blame for using the siding for the empty waggons, and I am quite satisfied that the accident was due to the defective condition of the road.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

19th July, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 17th, I have held an inquiry into the circumstances attending the accident which occurred on May 24th, at Dovecotland Junction, Perth, on the Caledonian Railway, whereby shunter Alexander Freel was fatally injured.

Freel, who was in the service of the Highland Railway Company, was working with a shunting engine. A lift of 16 waggons was being taken from the goods yard to the locomotive yard, the waggons being propelled from Balhousie Junction to the ticket platform at the north end of the passenger station, a total distance of about half-a-mile. In accordance with the usual practice Freel was riding on the leading waggon. This waggon was loaded with coal, and Freel was sitting on the top, at the right hand front corner. About 30 yards south of Dovecotland bridge the two leading waggons became derailed, and Freel jumped off into the four-foot-way. The waggons passed over his

body, causing fatal injuries. I was unable to ascertain the cause of the derailment, no indication being given by the condition of the permanent way or of the vehicles.

The practice of riding upon loaded waggons is one that has led to many serious accidents, and it is to be hoped that the Caledonian Company will take steps to abolish such a dangerous practice.

If it is necessary for the safe working of the traffic that a man should ride in the last vehicle, or in the leading vehicle in the case of propelled trains, a brake van or other suitable vehicle should be provided for the purpose.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

19th July, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 17th, I have held an inquiry into the circumstances attending the accident which occurred on May 30th at Dellburn Sidings, near Motherwell, on the Caledonian Railway, whereby brakesman John Morris was injured.

Morris was in charge of a goods train from Carstairs to Glasgow, which had to pick up certain waggons at Dellburn sidings. During shunting operations it was necessary to shunt a 15-ton six-wheeled Caledonian waggon (loaded with plates) from No. 2 siding into the loop road, which is on a falling gradient of about 1 in 80. When the waggon was drawn clear of the points Morris uncoupled it from the others on the engine, and then set the points for the loop road. As the waggon came down the road by gravity Morris attempted to steady it with the brake, but the brake was not in proper working order. In order to prevent the waggon from coming into collision with some other waggons in the loop road he attempted to stop it by placing a prop, which he found on the line, in front of the wheel. The prop swung round and struck Morris, breaking his right leg.

Although the defective condition of the brake was the primary cause of the accident I consider that the mishap may be attributed mainly to misadventure. I was unable to obtain any exact information as to the condition of the brake, as the waggon was not specially examined after the accident.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

19th July, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 17th, I have held an inquiry into the circumstances attending the accident which occurred on May 31st, in Moncrieff Tunnel, near Perth, on the Caledonian Railway, whereby a joiner named Frank Jones was injured.

The lining of this tunnel, which is three-quarters of a mile in length, is being renewed, and the traffic in both directions is worked over a single line in the centre of the tunnel. The renewal of the lining is done in sections, moveable shields of which the inner section is that of a single line tunnel being used as scaffolds for the men to work from. About 3.40 p.m. Jones was engaged in fixing some planks on the inside of the No. 1 shield, which was about 25 yards from the north end of the tunnel, when he was struck by the 1.35 p.m. passenger train from Edingburgh to Perth, the approach of which he failed to observe. He sustained injuries to his head, shoulder, and back.

Surfaceman James Gurrie, who was acting as "look-out" man, stated that he shouted "look-out" when the train was approaching, but he did not satisfy himself that Jones had heard this warning.

I consider that the accident was due to Gurrie's neglect in this respect. The tunnel was quite free from smoke at the time, and there was nothing to prevent him from seeing Jones' position.

James Russell, the driver of the passenger train, is not entirely free from blame. He only sounded his whistle once on entering the tunnel and once when in the middle of the tunnel. If he had whistled when approaching the shield in question it is possible that Jones would have heard the warning.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

19th July, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 18th, I have held an inquiry into the circumstances attending the accident which occurred on June 9th, at St. James' Station, Paisley, on the Caledonian Railway, whereby foreman joiner Edward Donaldson and ganger William Gilchrist were fatally injured.

Some timber for renewing the down platform had been unloaded on the up platform, and both Donaldson and Gilchrist had been assisting to carry the battens across the main lines. About 4.25 p.m. they found that no more battens were required immediately, and together with a labourer named James Reilly they remained standing on the up line between the platforms. About 4.30 p.m. a passenger train approached on the down line, and while they were watching this train they failed to notice the approach of an up passenger train, which was running at a speed of about 45 miles an hour. The driver whistled without effect, and then shut off steam and applied the brakes. Reilly was just able to climb on to the up platform and escaped without serious injury, but Donaldson and Gilchrist were struck by the engine and fatally injured. The unfortunate mishap can only be attributed to want of caution on the part of both men.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CLEATOR AND WORKINGTON JUNCTION RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

19th July, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 18th, I have held an inquiry into the circumstances attending the accident which occurred on June 3rd, near Steel Brow Cutting, on the Rowrah single line mineral branch of the Cleator and Workington Junction Railway, whereby carriage and waggon repairer John Jenkinson and quarryman Thomas Boyne were injured.

Both men were travelling to Steel Brow in the morning workmen's train. The train consisted of two brake vans, which were propelled from Oatlands to Steel Brow. Signalman John Seeds, who was acting as guard, was riding in the front van. As the train approached the tip siding at Steel Brow at a speed of about 3 miles an hour Seeds, who was on the platform at the end of the brake van, signalled to the man in charge of the siding points to let the front van run forward on the main line. He then released the

coupling between the two vans with his shunting pole. The gradient is a falling one of 1 in 100, and before Seeds was able to apply the brake the front van collided with an engine which was standing on the main line about 100 yards beyond the points. Jenkinson and Boyne fell to the floor of the van and sustained severe bruises.

Seeds admitted that he was acting improperly in uncoupling the van in such a manner, and he must be held mainly responsible for the accident. However, the method of working this train was apparently left entirely to the discretion of the guard, and from the evidence I am inclined to think that a proper supervision of the working would have resulted in better arrangements being made by the more responsible officials. Since the accident definite instructions have been issued that the train must not be propelled by the engine, and that the brake vans must not be uncoupled from the engine until all the workmen have alighted.

I have, &c.,  
J. H. ARMYTAGH.

The Assistant Secretary,  
Railway Department, Board of Trade.

### DUNDEE AND ARBROATH JOINT RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
7th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 27th, I have held an inquiry into the circumstances attending the accident which occurred on May 6th at Dundee, on the Dundee and Arbroath Joint Railway, whereby fireman David Stott was injured.

Stott is in the service of the North British Railway, and was firing on the yard pilot engine. About 7.0 a.m. the injector failed to work, apparently owing to the tank being empty. While the engine was being taken towards the water crane at the passenger station Stott went on to the top of the tender to satisfy himself as to the emptiness of the tank, and his head came into contact with the footbridge at Camperdown Junction crossing, and he was knocked down on to the coals on the tender.

A notice warning drivers and fireman against the dangerous practice of standing on the high parts of tenders of engines in motion was issued by the locomotive superintendent in January. Stott was well aware of this warning, and the accident must be attributed to his neglect to observe it.

I have, &c.,  
J. H. ARMYTAGH.

The Assistant Secretary,  
Railway Department, Board of Trade.

### FURNESS RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
27th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 23rd, I have held an inquiry into the circumstances attending the accident which occurred on May 2nd between Ulverston and Plumpton Junction, on the Furness Railway, whereby labourer Thomas Huck was fatally injured.

Huck was employed by Mr. C. W. Hunter, a contractor, who was carrying out ballasting operations for the Railway Company. Owing to the absence of the usual flagman on the morning in question Huck was appointed to that post by ganger Thomas Leach, who was in charge of the gang working with the ballast train. The train was working on the down line near Ulverston Station, and Huck was instructed by Leach and also by the Company's ballast-guard, William Curwen, to remain at a point about three-quarters of a mile from Ulverston to protect the train by means of a red flag. John Mawson, the ganger of the length, whose gang was working about 300 yards further from

Ulverston, and who was not concerned in the ballasting operations, was talking to Huck at the time when the latter took up his position, and advised him to stand on the outside of the down line. When the 9.16 a.m. passenger train passed on the up road Huck was in that position, but when the 9.22 a.m. passenger train from Ulverston was approaching, the driver, Thomas Mawson, noticed that Huck was standing in the six-foot way between the up and down lines with his flag on his shoulder and with his back towards Ulverston. Mawson sounded the whistle once to warn him, but it apparently had no effect, and Huck stepped sideways foul of the up line when the engine was within a few yards of him. He was struck by the buffer of the engine and fatally injured.

The accident must be attributed to Huck's failure to remain in the position which he had originally taken up.

Although ganger Leach is not employed directly by the Railway Company he was in possession of a rule book and understood that it was his duty to work according to the regulations. Huck had only worked with the ballast train for 15 days, and neither he nor the flagman, whose post he was temporarily occupying, had been passed in accordance with rule 216 (b). Huck was not supplied with any detonators and was not properly instructed as to his duties. I consider that both ganger Leach, and guard Curwen who was responsible for the safety of the train, are to blame for their neglect in this respect. It is to be hoped that steps will be taken by the Company to ensure that in future the rules and regulations are strictly carried out both by their own servants and those of the contractor who are engaged upon permanent way operations on their line.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### GLASGOW AND SOUTH WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
29th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 16th, I have held an inquiry into the circumstances attending the accident which occurred on April 8th at Bellahouston, on the Glasgow and South Western Railway, whereby surfaceman Patrick McGranary was fatally injured.

McGranary was one of a gang of six men under foreman Joseph Carty. About 8.40 a.m. they were engaged in packing the up main line at the point where it is crossed by the down loop line. The down and up main lines run approximately in an easterly and westerly direction respectively, and the junction between the loop and the main lines is about 70 yards east of the spot where the accident occurred. Carty, who was acting as "look-out" man, was standing close to the gang. He noticed a passenger train approaching on the up line, and shouted "Stand clear, main line." Four of the men crossed to the far side of the down main line, but McGranary and the other men stood with Carty in the four-foot way of the up loop line. When the train had passed the junction points Carty discovered that it was travelling on the up loop line, and shouted to warn the men, but McGranary failed to get clear, and was carried forward about 30 yards by the engine and fatally injured.

The accident was directly due to Carty's mistake in wrongly assuming that the train was travelling on the up main line. The train was running about the booked time and invariably travels on the up loop line, so it is difficult to understand how the mistake was made. From his position Carty was able to see the junction points, but owing to a curve in the line he could only see the train approaching for about 90 yards and was unable to see the junction signals, and I am of opinion that he had failed to take up a position from which he could properly protect his men.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

20th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 30th, the result of my inquiry into the causes of the fatal accident which occurred on the 13th April to porter S. Plaice, at Tottenham, on the Great Eastern Railway.

At 10.50 p.m., during shunting operations in the North Junction Sidings, Plaice endeavoured to attach the engine to four waggons standing in No. 4 road, and after making two ineffectual efforts to perform the coupling with his shunting pole while the engine and waggons were moving slowly, he threw the pole down and attempted to pass between the buffers, but was caught and crushed, with fatal results.

The mishap appears to have been due to the hasty and thoughtless action of the deceased man in attempting to pass between the vehicles while they were in motion, but at the same time the total absence of light at the place possibly contributed to the difficulty Plaice experienced in using the coupling pole in the first instance.

The sidings are not lighted in any way, and, as they are fairly extensive and there is about three hours' shunting performed in them nightly, I would recommend that the Company should consider the advisability of providing an efficient system of lighting without delay.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

20th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 30th, the result of my inquiry into the causes of the accident which occurred on the 18th April to engine-cleaner A. R. Tanner, at Ilford, on the Great Eastern Railway.

Tanner was assisting at the coal stage, and during the work it was necessary to push two trucks, which were standing about 18 feet apart on the "back" road, up to the stage. An engine was accordingly taken from the "front" road to perform the work by coalman Cook, who acts as shed shunter, and Tanner, after turning the points, went between the trucks, evidently with the intention of coupling them together, but as the engine came against the first truck it moved backwards and Tanner was knocked down by it and his leg considerably injured.

There was no necessity for Tanner to go between the waggons until they had come to rest, nor in fact at all, as had it been necessary to couple them together, which was not the case, a coupling pole was provided for the purpose, therefore the accident must be attributed to Tanner's own want of caution. I find that the use of the coupling pole has been by no means general in the past, but I understand that since the accident instructions have been issued enforcing its use in future.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

16th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 13th, the result of my inquiry into the causes of the

accident which occurred on the 28th April to acting-fireman G. Avis, at Lynn, on the Great Eastern Railway.

At 7.30 a.m. driver Minns and fireman Avis were instructed to prepare an engine to take out the breakdown van train to clear the main line at Hilgay, and when backing the engine on to the train preparatory to leaving the locomotive sidings Avis went to the back of the tender to draw some water to damp the coal.

When the train was run ahead he remained in this position, and when drawing the last bucketful from the screen his head came in contact with an overbridge and he was slightly injured.

The accident appears to have been due to the hurry and want of thought attendant on the desire to get the train away, as had the keys of the tool box been obtained the pipe which is used for watering the coal would have been available and the necessity for going to the back of the tender avoided.

It was unwise for Minns to start the engine while his fireman was in such a position, but the want of thought was natural under the circumstances, and no doubt the occurrence, which was fortunately not serious, will ensure more care being taken by the men concerned in future.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

31st May, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 22nd, the result of my inquiry into the causes of the accident which occurred on the 5th May to fireman A. J. Wilson, between Chadwell Heath and Goodmayes, on the Great Eastern Railway.

During the running of a light engine between the above stations the power brake became inoperative owing to one of the valves in the air pump failing to act. To restart the action of the pump it was necessary to tap the casing with a hammer, and Wilson, who was working with the engine, left the footplate for this purpose. After doing so, and when returning, his foot slipped on the top framing, and he fell from the engine, and was considerably injured.

Although it was desirable to restart the pump as soon as possible yet it was not absolutely necessary to do so while the engine was running. As it appears to be by no means an uncommon custom for men to leave the footplates of engines while they are in motion, and as the Company have no instructions discouraging such a practice, Wilson cannot be blamed for exposing himself in such a manner.

The practice is considered to be so dangerous that generally it is restricted as much as possible, and in some cases absolutely forbidden, therefore, as a number of accidents have occurred on this railway due to the same cause, I would again suggest that the Company should consider the advisability of issuing similar instructions without delay.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

13th June, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 4th, I have held an inquiry into the circumstances attending the accident which occurred on May 17th, at Angel Road, on the Great Eastern Railway, whereby John E. Lloyd was injured.



About 1 p.m. Lloyd, who was employed by Mr. J. Lawrence, junior, was engaged in weighing and loading coal from a waggon in the platform siding to a cart. The waggon door was supported by means of a prop consisting of a piece of gas-pipe. The pilot engine, with four waggons attached, was set back into the platform siding to pick up seven empty waggons at the top of the siding. Porter-shunter Ernest Watts, who was in charge of the shunting operations, failed to notice that all the waggons in the siding were buffered up slightly, and did not expect that the waggons at the bottom end of the siding would be moved at all. When the seven waggons were drawn out of the siding the other waggons were moved slightly owing to the pressure on the buffers being released, and the door of the waggon at which Lloyd was working fell down. Lloyd fell to the ground, and the scales which he had been using struck him on the leg, opening an old wound which was partly healed.

The accident must be attributed to want of caution on the part of Watts.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

20th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 11th, I have held an inquiry into the circumstances attending the accident which occurred on May 18th, at Cambridge, on the Great Eastern Railway, whereby shunter Frederick Carter was injured.

About 5 a.m. Carter was engaged in shunting some waggons off a down goods train into the down "straight road" sidings, which are between the up and down goods lines. He was standing between the up and down goods lines, and did not realise that he was just foul of the up line. As he was about to uncouple a waggon he was struck on the back by the step of the brake van of a goods train which was passing on the up line. His back was bruised, and his mouth was cut by coming into contact with the end of his shunting pole.

The mishap may be considered as one of an accidental nature.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

20th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 11th, I have held an inquiry into the circumstances attending the accident which occurred on June 2nd at Wood Street Station, Walthamstow, on the Great Eastern Railway, whereby permanent-way labourer Henry Mizon was injured.

About 10 a.m. Mizon was working with a gang of 10 men who were engaged in relaying the down main line. Warning was given of the approach of a passenger train on that line, and Mizon stepped clear of that line, but stood foul of the shunting road with his back towards the carriage sidings. As the down train was passing a train of empty coaches was drawn out of the carriage sidings along the shunting neck, and Mizon was struck on the right shoulder by the engine. He was knocked down, but was not seriously injured.

The accident was primarily due to the fact that Mizon failed to satisfy himself that he was standing in a safe position, in accordance with Rule 273a, but at the same time I consider that David Wheal, the driver of the empty coach train, was to blame for not keeping a proper look-out. He was aware that the relaying operations were in progress on the down main line, but he failed to sound his whistle as a warning to the platelayers.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

20th June, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 11th, I have held an inquiry into the circumstances attending the accident which occurred on June 2nd at St. Botolph's Station, Colchester, on the Great Eastern Railway, whereby goods porter George E. Fisk was injured.

About 8.35 a.m. Fisk was engaged in shunting operations in the goods yard. The engine was about to take eight waggons from the "back" road on to the down main line and set them back into the up platform siding. Fisk had got into the second waggon from the engine in order to wash his hands in some water which had collected in a sheet in the waggon, and he remained in the waggon when the engine went ahead. While he was leaning over the side in order to see whether the last waggon had cleared the points his head came in contact with the centre column of the Childwell Alley overbridge and was cut. There was no necessity for Fisk to have been inside the waggon at all, and the accident was entirely due to his want of caution.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

19th July, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of July 3rd, I have held an inquiry into the circumstances attending the accident which occurred on June 3rd, at Bishopsgate Low Level Station, on the Great Eastern Railway, whereby a painter named John Angers was fatally injured.

Angers and another painter named Thomas Hubbard, who were employed by Messrs. Watts, Johnson & Co., contractors, were engaged in painting the inside of the valance of a new awning erected over the middle platform. About 8.50 a.m. they placed a ladder against the inside of that part of the valance which is parallel to the up local line. Angers got on to the ladder and Hubbard stood at the foot of it on the platform. About 9 a.m. Hubbard warned Angers of the approach of a passenger train on the up local line, but he replied that he was all right, and remained on the ladder. The engine passed the ladder without touching it, but the side light of the front van struck the toe of Anger's right boot. The ladder was knocked down and Angers fell on to the platform. His head was struck by one of the carriages, and he received injuries which proved fatal.

Angers had been working on the previous day at the same part of the awning with his foreman, John Chambers, who stated that in every case the ladder had been removed on the approach of a train, and it is difficult to understand why Angers did not take the same precaution in this case. Owing to the construction of the line the men would only

have a short notice of the approach of trains, and I am of opinion that the operation of painting from a ladder, which might possibly be foul of passing trains, was an unnecessarily dangerous proceeding. I consider that arrangements should have been made either by Chambers or James Taffs, the general foreman, for the work to be done by some safer method.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

16th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 1st, the result of my inquiry into the causes of the accident which occurred on the 12th April to fireman C. Pegg, at Bourne, on the Great Northern Railway.

At 4.50 p.m., while engine No. 957 was standing on the slip road leading from the loco-sidings waiting for the outlet signal to be pulled "off" for the main line, Pegg went to the back of the tender to place the food baskets in the boxes. While he was doing so driver Ledger, who was in charge of the engine, asked him to see how much water there was in the tank. Immediately afterwards the disc signal was pulled off and Ledger ran the engine slowly ahead. Pegg, however, remained on the top of the tender, and failing to notice an overbridge his head came in contact with it, and he was severely injured.

Seeing that the engine had run fully 70 yards before coming to the overbridge, and was moving very slowly at the time, I consider Pegg displayed a want of caution in remaining in such a dangerous position. Driver Ledger also acted very unwisely in starting the engine while his fireman was on the top of the tender.

This Company have no instruction warning enginemen against the dangerous practice of going to and remaining on the tops of tenders while they are moving, and as accidents of a similar nature have occurred recently on this system I would recommend the issue of such a notice without delay.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### HULL, BARNSELEY, AND WEST RIDING JUNCTION RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

2nd June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 21st, I have held an inquiry into the circumstances attending the accident which occurred on May 10th, at Springhead, Hull, on the Hull, Barnsley and West Riding Junction Railway, whereby engine cleaner Alexander Stout was injured.

About 6.20 a.m. Stout was crossing from one side of the engine shed to the other. He attempted to cross No. 3 road between an engine which was at rest and another engine which was slowly approaching it, with the result that his body was severely bruised between the buffers.

I consider that the accident was solely due to want of caution on the part of Stout.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

8th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of July 15th, I have held an inquiry into the circumstances attending the accident which occurred on June 28th, at Heaton Lodge Junction, on the Lancashire and Yorkshire Railway, whereby ballastman Joseph Winterburn was injured.

About 10.30 a.m. the ballast train with which Winterburn was working was standing on the down south line a short distance west of the cross-over road, the engine being at the west end of the train. It was necessary to shunt the train on to the up south line to allow a down passenger train to pass. Foreman Walter Webster gave the usual warning to the ballastmen, and the train was set back over the points of the cross-over road. The waggon from which Winterburn had been unloading ashes was empty, and before the train was drawn across on to the up line he attempted, with the assistance of two other men, to close the waggon door. When the engine went ahead Winterburn, who was standing in the waggon at the back end, fell out on to the ballast, his back being bruised by the fall.

The evidence as to whether the engine whistle was properly sounded when the engine drew ahead is conflicting, but there is no doubt that Winterburn acted unwisely in placing himself in an insecure position before the foreman had given instructions for the ballastmen to recommence their work.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

8th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of July 5th, I have held an inquiry into the circumstances attending the accident which occurred on June 28th, at Windsor Bridge, Salford, on the Lancashire and Yorkshire Railway, whereby goods guard Mason Howarth was fatally injured.

About 4.30 p.m. Howarth, who was guard of the 4 p.m. cattle train from Windsor Bridge to Southport, was making up his train in No. 3 road. The train engine was working on the shunting neck which runs parallel to the down slow line. When Howarth was about to uncouple some empty waggons from his engine he was struck by the engine of the 4.25 p.m. passenger train from Manchester to Blackpool, which was travelling on the down slow line at a speed of about 40 miles an hour. He was knocked against the waggons on the shunting line and killed instantaneously.

The space between the shunting neck and the down slow line is only 6 feet 3 inches in width, and as there is a considerable amount of fast traffic on the latter line I consider that the shunting operations which have to be performed from this space are attended with an undue risk of danger to the men employed therein. The existence of an overbridge which carries the public road over seven lines of rails at this point will no doubt preclude the possibility of any alterations in the permanent way, but I am of opinion that the Company should seriously consider whether any less dangerous means of dealing with the traffic can be devised.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

LANCASHIRE AND YORKSHIRE AND LONDON AND NORTH-WESTERN  
JOINT RAILWAYS.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

13th May, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 30th, I have held an inquiry into the circumstances attending the accident which occurred on April 1st, at Preston, on the Lancashire and Yorkshire and London and North-Western Joint Railways, whereby lampman John Waddilove was injured.

Waddilove is in the service of the London and North-Western Railway, and it was his duty to light the lamps in three coaches which stood for a short time at No. 2 platform. When these coaches were drawn ahead, in order that they might be set back into No. 1 bay, Waddilove was on the top of one of them. The coaches were stopped at the signal-box for about a minute and were then drawn ahead again. As they passed under the Park Hotel bridge Waddilove's shoulder came in contact with the smoke board, and his back was bruised.

Assistant station master Thomas White is responsible for allowing the coaches to leave the platform without ascertaining that no lampmen were on the top of them. At the same time Waddilove had plenty of time to get off the coach while it was standing at the signal-box, and the accident would have been prevented if he had exercised a reasonable amount of caution.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

3rd May, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 24th, I have held an inquiry into the circumstances attending the accident which occurred on April 7th, at Stafford, on the London and North-Western Railway, whereby fireman Herbert Hales was fatally injured.

Hales was fireman on the 8.59 a.m. passenger train from Rugby to Stafford. The engine of this train is detached at Stafford and runs light thence to Stoke. Hales had been on the same working several times previously and had always put on the necessary head and tail lamps while the engine was standing at the water crane in Stafford station. On this occasion, however, he apparently forgot to put the tail lamp on the tender before the engine left Stafford, and he attempted to do so while the engine was in motion. Hales was on the top of the tender just as the engine reached the Castle bridge, and he was struck by the smoke board of the bridge. He fell on to the line and was fatally injured.

Drivers and firemen are specially warned against the practice of going on to the top of the tender of engines in motion, and Hales was alone responsible for neglecting this important warning. The driver, John Walker, was not aware of Hales' action.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. H. ARMYTAGE.

LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

27th May, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the order of May 13th, I have held an inquiry into the circumstances

attending the accident which occurred on April 24th, at Crewe, on the London and North-Western Railway, whereby goods porter John Chadwick was injured.

About 7.30 a.m. Chadwick and porter Arthur Hughes were engaged in tying the sheet strings on a waggon standing outside the goods shed. While Chadwick was leaning over the buffer at the end nearest to the shed some other waggons were shunted into the road from the yard. The waggon was pushed towards the shed, and Chadwick held on to the buffer to save himself from falling on to the rail. When the waggon had travelled about 20 yards it came into contact with another waggon in the same road, and Chadwick's arm was crushed between the buffers.

Shunter Daniel Lloyd, who was in charge of the shunting operations, states that he did not see Chadwick until after the waggons were detached from the engine, when he gave a verbal warning, and the driver also gave an alarm whistle. This warning, however, appears to have been too late to be of any value as far as Chadwick was concerned. Although it is customary for sheet strings to be tied in the shed roads it appears to be the practice for shunters to give warning of shunting operations only when they can see that anyone is in danger. It is often necessary for men to go between waggons in order to tie the sheet strings, in which case they would probably not be in sight of the shunter, and it is therefore necessary for the shunter to ascertain that all is clear before moving any waggons in these roads.

It is to be hoped that the Company will take steps to ensure that this practice is carried out in future.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

SIR,

16th June, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 27th, the result of my inquiry into the causes of the fatal accident which occurred on the 12th May to foreman shunter James Garner, near Canal Bridge, on the Ravenhead Branch of the London and North-Western Railway.

A train of 30 waggons had been propelled from St. Helens Junction to Canal Bridge, with foreman Garner and shunter Penketh in attendance. On arrival at the latter place some shunting had to be performed, and Garner instructed Penketh to detach the three leading trucks, so that they might be placed in the "wall" siding, at the same time telling Penketh that he would ride down on the waggons to set the points for a subsequent shunt. When the waggons were some way down the siding Garner, who was sitting on the edge of the leading truck, shouted to a platelayer to set the points, and it is assumed that when attempting to jump from the waggon, which was still moving, he stumbled, and, falling with his legs across the rails, was run over by the following waggons, and fatally injured.

It was unnecessary for Garner to ride on the waggons while they were being shunted, and he displayed a want of caution in so doing. However, I think the mishap may be classed as accidental.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W..

SIR,

19th July, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of July 3rd, I have held an inquiry into the circumstances attending the accident which occurred on June 15th, between Tebay and Oxenholme, on

the London and North-Western Railway, whereby labourer Houghton Hodson was injured.

Hodson was one of a gang of 17 men in the telegraph department, who were engaged in depositing telegraph poles and fittings on the line for renewal purposes. The train from which the poles, &c., were deposited consisted of 19 waggons, and was travelling on the up line, but in the wrong direction, single-line working being in force. It was necessary to deposit a 26-ft pole at a point about 50 yards north of Dillicar old signal box. One load of 26-ft. poles was being conveyed on a pair of bolster waggons, and Hodson and a wireman named Joseph Derbyshire were at the south end of this load. Another wireman named Alexander Ramsay was at the north end of the load. The weather was wet and stormy, and the poles were greasy, and Ramsay, who was holding the thick end of the pole in question, allowed it to fall from the truck before Hodson and Derbyshire had lifted the other end over the pin at the end of the bolster. The train was travelling about three miles an hour, and the thick end of the pole caught against a sleeper, with the result that the other end was drawn across the top of the trucks by the bolster pin. Derbyshire was standing on the near buffer of the rear truck, and escaped injury, but Hodson, who had been standing on the poles, was knocked off on to the line, his right leg being broken.

It is usual to load these 26-ft. poles on three low-sided waggons, and in that case there is plenty of room for the men to stand on the floor of the waggons at either end of the poles. The total length of waggon floor with a pair of bolster waggons is only about 27 feet 3 inches, and I do not consider that it is a safe practice to unload 26-ft. poles from a pair of such waggons when in motion.

It is to be hoped that instructions will be issued that only such vehicles are to be used for this purpose as will give a sufficient margin of standing room at either end for the men to perform the work efficiently and safely.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

12th June, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 28th, the result of my inquiry into the causes of the fatal accident which occurred on the 11th May to labourer A. Turner, at Clapham Junction, on the London and South-Western Railway.

Turner was engaged fixing a cable to a telegraph-post close to an overbridge which is being renewed in connection with some extensions to the station at Clapham Junction. While he was so employed a travelling crane was run on the up local line beneath the bridge, but the jib, not having been lowered sufficiently, came against the outer girder, which was 9 inches lower than the other girders, and displacing it from the bed-stones it fell and crushed Turner against the pole, his injuries being so serious that he died shortly afterwards.

The crane was being used to transfer some bed-plates from the carriage sidings, under the personal direction of Mr. Hunt, the sub-contractor performing the work, and who had entire control of the line on which it was working. It is to be regretted that more care was not taken to see that the jib would clear before taking the crane below the bridge, and to this omission the accident must be attributed.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

25th June 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of June 13th, I have held an inquiry into the circumstances attending the accident which occurred on May 23rd at Eastleigh, on the London and South-Western Railway, whereby goods guard George Holloway was fatally injured.

Holloway was guard of the 6.55 a.m. goods train from Eastleigh to Petersfield. While his train was being made up at the south end of the yard he was walking between the "straight" road and No. 8 road. A loaded high side waggon was shunted off the yard pilot engine by second shunter Frederick Doling, who shouted to assistant shunter Francis Earley to turn the waggon into No. 9 road. Earley, who was standing by the points, was under the impression that the points were set for No. 9 road so he did not alter them. The points, however, were set for No. 8 road, and the waggon travelled down that road and struck Holloway, knocking him down. The waggon wheels passed over his legs, causing fatal injuries. It is possible that Holloway heard Doling call out "No. 9 road," and consequently imagined that he would be in no danger while standing foul of No. 8 road. Holloway, however, was about 20 yards further from Doling than Earley was, and a goods train was running into the yard at the time of the mishap.

In the absence of any direct evidence on the point, I consider that the accident may be attributed to misadventure.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON, TILBURY, AND SOUTHEND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

12th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 1st, the result of my inquiry into the causes of the fatal accident which occurred on the 17th April to permanent-way labourer William Halls, between Tilbury Docks Station and Grays Station, on the London, Tilbury, and Southend Railway.

Halls was attached to a repairing gang which consisted of a ganger and three labourers, and as Halls was second man he took charge during the ganger's absence. On the morning in question at 6.10 a.m. Halls and Rayner, without the ganger's knowledge, commenced to open out the up main line, about 120 yards beyond the distant signal for Tilbury Docks Junction, the ganger, H. Houghton, being absent examining his length, and the other labourer some distance away obtaining tools to perform the work. The morning was foggy, and particularly so at the place where the accident occurred, but it was not sufficiently dense at Tilbury Docks Station to require the services of fog signalmen.

At 6.20 a.m., while Rayner and Halls were at work, the former happened to look up and saw an engine approaching when it was only 10 yards distant from him, and he jumped clear, but Halls, who was facing the other way, failed to notice it, and was knocked down and run over with subsequent fatal results.

The accident may be attributed to misadventure, but at the same time the deceased man, who was in charge at the time, displayed a lack of judgment in failing to appreciate the danger of working while such conditions prevailed, as he had not even taken the precaution to station a look-out man as a means of protection.

In view of the unfortunate occurrence and the circumstances connected with it, the Company might draw the attention of the men in charge of such operations to the danger



of performing such work when a view of approaching trains is in any way obscured through a similar cause, and the necessity for strictly complying with the regulations, should occasions arise when work has to be undertaken under such conditions.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON, TILBURY AND SOUTHEND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
31st May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 22nd, the result of my inquiry into the causes of the fatal accident which occurred on the 3rd May to permanent-way labourer Robert Robertson, between East Ham and Barking Stations, on the London, Tilbury and Southend Railway.

Robertson was working with a gang of men who were discharging ballast from a ballast train on the down main line, and during the work it was necessary to move the train forward a short distance.

Before this was done ganger Clark, who was in charge, gave warning to the men, and when he was satisfied that they had all ceased working he instructed the driver to go ahead. During the movement of the trucks Robertson, who was standing in one of the waggons leaning on his shovel, slipped, and falling from the truck was run over by the two following waggons, and sustained injuries which proved fatal.

As due warning was given, and Robertson was aware of what was taking place, the mishap may be classed as accidental.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MANCHESTER AND MILFORD RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
11th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 26th July, the result of my inquiry into the causes of the fatal accident which occurred on the 25th June to Evan Evans, between Trawscoed and Llanilar, on the Manchester and Milford Railway.

Some cattle had broken through the fencing between Trawscoed and Llanilar, and Evans, who was in charge of the section as ganger, loaded up a lorry with timber and tools at the latter station for the purpose of repairing the breach.

He left Llanilar with the lorry at 10 a.m., one of his gang accompanying him. After completing the work the return journey was commenced about 11.30 a.m., both men riding on the lorry. When approaching the Mill curve the ballast train engine was sighted about 250 yards ahead, and the lorry was brought to rest and the frame removed, but when attempting to lift the wheels from the rails the engine buffer struck Evans, and he was injured to such an extent that he died shortly afterwards.

No steps were taken to protect the lorry, in accordance with Rule 248a, nor had Evans even taken the precaution to advise the signalman at Llanilar before leaving, therefore the accident must be attributed to the deceased man's own negligence.

I understand that it is customary to employ flagmen, but in this instance the services of men to act in this capacity could not be obtained owing to the fact that they were employed with the ballast gang.

It is very essential that the rules laid down for the protection of platelayers lorries should be strictly adhered to, and in view of the circumstances connected with this accident I would suggest that the Company should impress their gangers and leading men with the necessity for invariably complying with such instructions, and provide them with the necessary men to do so.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
6th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 24th, the result of my inquiry into the causes of the accident which occurred on the 1st April to goods guard H. J. Bailey, at Luffenham, on the Midland Railway.

Bailey was working as under guard with the 7.30 a.m. goods train, Toton to Peterborough, and during shunting operations at Luffenham, about 2.35 p.m., when he was running beside a number of waggons for the purpose of applying the brakes, he caught his foot against some point rod angle connections, and, falling, sustained considerable injury.

The point rodding and connections mentioned are placed in the six-foot way between the up and down main lines, where it is seldom necessary for men to pass when conducting shunting operations, and although the accident was primarily due to the obstruction caused by their presence yet it was unwise for Bailey to take such a path when he could have performed the work equally as well and with less danger from the other side, where the way is clear. However, to prevent the possibility of accidents occurring from the same cause in future, the Company might consider the advisability of covering in the rodding so that it may form as little obstruction as possible.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
23rd April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 16th, I have held an inquiry into the circumstances attending the accident which occurred on April 2nd, at Sheffield, on the Midland Railway, whereby platelayer Fred. Tomlinson was fatally injured.

About 10.15 a.m. Tomlinson was engaged in packing the road at the points which lead from the Queen's Road yard to the down main line. The ganger, Henry Hill, and two other platelayers were working at the same spot. The 9.10 a.m. down passenger train from Nottingham to Sheffield, and the 8.50 a.m. up passenger train from Leeds to Derby, were approaching at the same time. Warning was given by the ganger in ample time for the men to step clear of both main lines, but Tomlinson turned back into the six-foot way just as the trains were approaching. He was struck by the footboards of the down train and received injuries which proved to be fatal.

On previous occasions Tomlinson had been warned of the importance of strictly adhering to Rule 273a of the Railway Clearing House Rule Book, and he alone was to blame for neglecting to carry out the rule in this case.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

10th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 24th, I have held an inquiry into the circumstances attending the accident which occurred on April 4th, at Walsall, on the Midland Railway, whereby fireman Charles H. Bourne was injured.

Bourne was a fireman on a tank engine which was standing over the ashpit in the locomotive yard about 8.50 p.m. While he was in the pit raking out the ash-pan a tender engine was set back into the ash-pit road, and was brought to a stand about a yard from the tank engine. The driver of the tender engine, William Wakelin, noticed that his engine was not quite clear of the points leading to the coal stage road, but thought that he could set back sufficiently to clear the points without moving the tank engine. As he did so Bourne was climbing out of the pit between the two engines, and his left arm was crushed between the buffers. The tank engine was not moved at all, but I consider that Wakelin would have acted more wisely if he had satisfied himself as to Bourne's position before setting back. On the other hand Bourne displayed a want of caution in climbing out of the pit between the buffers of the two engines.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade;  
1, Whitehall, London, S.W.,

12th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 24th, the result of my inquiry into the causes of the fatal accident which occurred on the 8th April to permanent-way labourer J. E. Hill, in Corby tunnel, near Weldon and Corby, on the Midland Railway.

Hill was engaged with a number of other men ballasting the up main line which had recently been relaid through Corby tunnel. About 3.45 p.m. warning was given that a ballast train was approaching on the up line, and all the men stood clear, Hill with others crossing the down line and taking up a position between that line and the wall of the tunnel where there was a clearance of 4 feet 4 inches. Immediately the ballast train had passed warning was received that an express train was approaching on the down line, and the ganger advised the men to remain in the positions they were occupying. After the train had passed it was found that Hill had been struck by the train and instantly killed. He cannot, therefore, have been standing sufficiently clear, and as every precaution seems to have been taken to protect the men in accordance with the regulations the mishap may be attributed to misadventure.

Hill had only been in the service a month and engaged in Corby tunnel for three weeks of that time, consequently he must have been somewhat inexperienced. As the danger of working in tunnels where trains are constantly passing is very great, I would suggest that the Company should consider the advisability of only employing thoroughly experienced men for such duties in future.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

13th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 30th, I have held an inquiry into the circumstances attending the accident which occurred on April 12th, at Derby, on the Midland Railway, whereby engine-cleaner Walter Payne was injured.

Payne was one of a gang of five cleaners, cleaner Samuel Bull being in charge.

About 10 p.m. they were cleaning a six-wheels-coupled tank engine which was standing in what is known as Pickerings pit road. The engine was only just clear of the coal stage road, which is used as a running line. The cleaners failed to observe the approach of an engine on the latter road, and Bull was struck by the side rod. He was not seriously injured, but he fell against Payne, whose side was bruised against the framing of the tank engine.

I consider that the accident was due to the close proximity of the tank engine to the coal stage road. Assistant-foreman cleaner Albert Loom was aware of the position of the tank engine, and should not have permitted the cleaners to work at an engine so close to a running line without taking special precautions for their safety.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

13th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 30th, I have held an inquiry into the circumstances attending the accident which occurred on April 13th, at Leicester, on the Midland Railway, whereby tuber Joshua C. Leslie was injured.

In order to replace the lead plug in an engine which was standing in the "long coal road," outside No. 2 shed, Leslie had taken out the top wash-out plug, which is about an inch below the level of the fire box crown. The lead plug had been removed, and Leslie's mate was inside the fire-box tapping the plug-hole. Leslie was standing on the foot-plate about 1.30 a.m., when the engine was moved by other engines which were brought into the road by shedman Thomas Sharp. The movement caused some of the hot water to escape by the wash-out plug-hole, and Leslie's right arm was scalded.

I consider that the accident was mainly due to the fact that Leslie neglected to put a red light on the engine as an indication that it was not to be moved. Further, the boiler should have been entirely emptied by the boiler washer before Leslie commenced to renew the lead plug. Although the use of red flags and lamps as a protection was apparently understood by Leslie there are no written or printed instructions as to their use, and I consider that the issue of definite instructions on the point would be of advantage.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

26th April, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 16th, I have held an inquiry into the circumstances

attending the accident which occurred on April 2nd, at Cowlairs, on the North British Railway, whereby coupling cleaner Francis Teague was fatally injured.

About 3.30 p.m. Teague attempted to pass between two coaches standing in No. 1 road of the up carriage sidings. Teague had no work to perform in these sidings, which are used for storage purposes only. The coaches in question were standing about a yard apart, and just as Teague was passing between the buffers they were closed up, owing to another coach being shunted into the road by goods guard John Kennedy, who was acting as carriage shunter. Teague was crushed across the chest by the buffers, and he died shortly afterwards. Carriage cleaner James McLeod was walking in the six-foot way, on the far side of No. 1 road, and states that he warned Teague not to pass between the vehicles, but without effect.

The accident must be attributed to want of caution on the part of the deceased.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

30th April, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of April 16th, I have held an inquiry into the circumstances attending the accident which occurred on April 5th, at St Margaret's, on the North British Railway, whereby surfaceman Philip Judge was fatally injured.

About 6.50 a.m. Judge was engaged in oiling the points in St. Margaret's locomotive yard. A six-wheels-coupled tender engine was standing on the road leading to the points where Judge was working, and about 25 yards from them. Engine turner John McGeachie was instructed to take his engine to another shed, and did not see Judge when walking past the points to the engine. The engine was running tender first, and McGeachie would not have been able to see Judge from the footplate. The whistle was sounded before the engine was started, and after the engine had passed the points Judge's body was seen lying across the rail by another driver. Nobody actually witnessed the accident, and, under the circumstances, I consider that it may be attributed to misadventure.

Judge had been three months in the service, and was in possession of a rule book, but I was unable to ascertain whether he was properly acquainted with the rules.

Both James Gow, who had been his foreman for about a fortnight before the accident, and James McNeill, who had previously been foreman of the gang, admitted that they, personally, were not well acquainted with the rules, and had never carried out the latter part of Rule 241 of the Railway Clearing House Rule Book. It is of the utmost importance that all permanent-way men should thoroughly understand the rules for their own protection, and it is to be hoped that the Company will take steps to prevent such laxity in future.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

28th May, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 8th, the result of my inquiry into the causes of the accident which occurred on the 19th April to marshalman H. Walker, at Perth, on the North British Railway.

Walker was engaged shunting in the goods yard, and at 3.15 a.m., when 20 trucks were being drawn up the Straight Road, he jumped from one of the waggons, on which he was riding, and his shunting pole coming in contact with the waggon, caused him to stumble and fall over a point handle, with the result that his wrist was somewhat injured.

There was no need for Walker to ride on the waggon in such a manner, nor to jump from it while it was in motion, and, therefore, he must accept the consequences of his uncalled-for action.

The lighting of the yard is far from being satisfactory. The quality of the light is indifferent, and the lamp glasses appear to be seldom cleaned. As regards the lighting, I understand that the Company are considering the advisability of installing electric light before next winter. This is very desirable, and it is to be hoped that a favourable decision will be arrived at without delay. In the meantime, steps should be taken to keep the present lamps in a thoroughly clean, and, as far as possible, efficient state.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

23rd June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 8th, the result of my inquiry into the causes of the accident which occurred on the 25th April to goods guard John Thomson, at Port Downie, on the Camelon Branch of the North British Railway.

The Camelon Branch is a single line connection with a falling gradient of 1 in 26 leading from the main line to a number of iron works. As the incline is so severe, the load which may be worked down the branch at one time is limited to a certain number of trucks, which have the brakes pinned down, and in many cases the wheels spragged. It is also instructed that the engine must be in front when a brake van is not attached, to prevent the waggons from breaking loose. At the foot of the branch where the sidings lead to the different works it is customary, owing to the fact that no facilities are provided for running-round purposes, to bring the trains to a stand clear of the points, and after detaching the engine, which is run ahead into a siding, the waggons are allowed to run past it by gravitation.

This had been done on the occasion in question, but owing to some grit on the rails the waggons, two of which were spragged, would not run past the engine, and to release the sprags a prop was used between the engine and trucks. The prop, however, slipped as Thomson was holding it, and he was struck on the shoulder and somewhat injured.

The mishap may be classed as accidental; at the same time the method of working appears to be attended with considerable risk, especially as I understand it is necessary in many instances to use the prop for a similar purpose.

If the Company cannot provide facilities for running the engines round the waggons, I consider it would be much safer to attach a brake van to the rear of all trains on the branch, so that the braking power would be controlled by hand, and applied and released from the van as occasion arose, by which the use of the prop would be avoided, and the liability of accident considerably lessened.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

20th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of June 4th, the result of my inquiry into the causes of the accident which occurred on the 5th May to George Scott, at Hawick, on the North British Railway.

Scott was employed by Mr. James Bowie a local blacksmith, who commissioned him to go into the goods yard to repair a waggon belonging to Messrs. Millar and Son, coal merchants. He proceeded to do so, and without the knowledge or consent of the railway officials commenced to work at the waggon, which was standing in the "back siding."

Fourteen waggons were standing in front of the waggon at which he was engaged, and when the shunting engine with fifteen waggons attached was brought into the siding to pick up the leading truck the waggons were moved backwards, and Scott's leg was partially run over, and has since been amputated.

From the evidence which I obtained it appears that it has not been an uncommon practice for men in private employment to perform work of a similar description in the goods yard without notifying any of the officials, and evidently without taking any steps to protect themselves. This should be put a stop to at once as it is highly dangerous, and private owners having waggons which require to be repaired in such places should be advised that before such work can be undertaken consent must be obtained from the person in responsible charge, who should see that all proper precautions are taken to protect the men so working, and I would recommend that the Company should adopt this system without delay.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

13th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 27th, I have held an inquiry into the circumstances attending the accident which occurred on May 8th, at Balloch, on the North British Railway, whereby ballast flagman Robert Irvine was injured.

Irvine was flagman for a ballast train which had been working on the Forth and Clyde single line branch, and which was about to run from the Forth and Clyde Junction to Glasgow. The brake was left on the branch line and the waggons were placed in the ballast siding. The engine was attached to the brake in which Irvine was riding when it was being set back on to the train. In order to uncouple the engine, which was going to "tow" the train out of the siding, Irvine stood on the buffer casting of the brake and attempted to lift the coupling with his right hand. When the brake came against the waggons his left foot slipped on to the buffer spindle and was crushed between the socket and the buffer head.

Irvine was supplied with a coupling pole, and the accident was due to his neglect to use it in this case, but I consider that the ballast guard, William Hay, is also somewhat to blame for permitting Irvine to act contrary to Rule 23a of the Railway Clearing House Rule Book.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
2nd June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of May 21st, I have held an inquiry into the circumstances attending the accident which occurred on April 17th, at Newport Bank, on the North-Eastern Railway, whereby greaser Joseph Bielby was fatally injured.

A special goods train from Middlesbro' to Newport had been pushed up the "Stockton Independent" road. Almost parallel to this line is the shunting road, and these two roads converge at the top of the bank. The brake van was left above the points and the train was drawn down clear of the points. Bielby finished greasing the train about 12.10 a.m. and was about to cross the shunting road on his way to the greaser's cabin. He failed to notice the approach of the brake van which was being run down the shunting road by gravity, and was knocked down and fatally injured, the wheels of the van passing over his right arm and right leg.

It is a regular practice for the brake vans to be released in this manner, and the accident must be attributed to want of caution on the part of Bielby.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
20th June, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of June 4th, the result of my inquiry into the causes of the accident which occurred on the 10th May to goods guard R. Wright, at Seaton Delaval, on the North-Eastern Railway.

Wright was working as assistant-guard with the 1.30 p.m. goods train, Heaton to Choppington, and on arrival at Seaton Delaval it was necessary to attach two waggons which were standing in the goods-siding to the train.

As there is only one cross-over road between the main lines it is necessary to prop all waggons which have to be attached to down trains past the engine unless the sidings belonging to the Colliery Company are clear for running-round purposes, and as they were blocked at the time it was necessary to use a prop between the engine and the two waggons in this case.

Owing to the cross-grain of the wood the prop broke when the engine came against it, and striking Wright, who was holding it in position, he was somewhat injured.

The accident is one of many which may be expected to occur when propping has to be resorted to, and, as I find that traffic has to be dealt with in a similar manner daily at this place, I would recommend that another cross-over should be provided so that the dangerous practice may be avoided, and especially so as there is ample accommodation for such a connection.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## SOMERSET AND DORSET JOINT RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
12th May, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of May 1st, the result of my inquiry into the causes of the



accident which occurred on the 16th April to fireman J. Cutler, at Blandford, on the Somerset and Dorset Joint Railway.

After the arrival of the 4.30 p.m. goods train at Blandford the engine was taken into the goods yard for shunting purposes, and while it was at rest for a few moments Cutler went to the back of the tender to obtain some food from one of the tool boxes. As he was in the act of doing so a signal was received from the shunter to go ahead, and driver Dutton moved the engine forward; and Cutler in returning to the footplate failed to notice a loading gauge, with which he came in contact, and he was thrown down and considerably injured.

Dutton should not have moved the engine while his fireman was in such a position, therefore I consider he is responsible for the accident. It is only fair to mention that the practice is by no means uncommon, and to prevent as far as possible a repetition of such an occurrence the Company's representatives have agreed to issue a warning notice to the men.

I also understand that steps are now being taken to alter the position of the tool boxes so that they may be reached from the footplate.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### WREXHAM, MOLD AND CONNAH'S QUAY RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR, 6th May, 1902. ?

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of April 24th, the result of my inquiry into the causes of the fatal accident which occurred on the 9th April to fireman George Roberts, between Cefnybedd and Frewd Junction, on the Wrexham, Mold and Connaah's Quay Railway. ~~in~~

As the 6.52 a.m. goods train from Penyffordd to Wrexham was running up the gradient between Cefnybedd and Frewd Junction the engine wheels commenced to slip owing to the greasy state of the rails, and Roberts, who was acting as fireman with the train, stepped off the engine, evidently with the intention of tapping the sand pipe, just as the 6.55 a.m. passenger train from Wrexham to Buckley was passing, with the result that he was knocked down and received injuries which shortly afterwards proved fatal.

Roberts should not have left the footplate while the engine was in motion for such a purpose, and as he did so without his driver's knowledge the accident must be attributed to the deceased man's own want of caution.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

For other Reports of Inquiries into Accidents which have occurred during the six months, see [Cd. 1232].

## APPENDIX C.

## REPORTS OF SUB-INSPECTORS A. FORD AND J. J. HORNBY ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
BARRY ... ..	<p>Date of Accident—16th May, 1902. Place at which Accident happened—Barry Docks. Name of Person killed—John Jenkins. Age of Person killed—24. Capacity in which employed—Tipper. Number of booked working hours per diem—13. How long on duty at time of Accident—9½ hours.</p> <p>Description of Accident—Jenkins and two other men named W. Phillips and W. Martin were employed for the purpose of “tipping” coal from waggons into vessels at the No. 12 tip. The two feeding sidings are on a slight falling gradient, so that after the waggons have been set in motion by capstan they run easily to the position required. It was usual for one man—Martin—to attend to the capstan, and Jenkins and Phillips to work the waggon brakes. At about 2.30 on the morning in question it was necessary to lower nine waggons towards the tip. The work was gone through as usual, but after the waggons had been brought to a stand Phillips observed Jenkins lying injured by the side of the rail. Jenkins died shortly afterwards.</p> <p>Date of Accident—30th May, 1902. Place at which Accident happened—Barry Docks. Name of Person injured—Forbes Mackenzie. Age of Person injured—21. Capacity in which employed—Fireman. Number of booked working hours per diem—Uncertain. How long on duty at time of Accident—5 hours. Nature of injury—First and second fingers of right hand cut off.</p> <p>Description of Accident—Mackenzie and engine driver Wm. Slocombe were working with tank engine No. 100 in what is known as the East Dock sidings. In consequence of heavy rain the bottom of the left hand trailing sand pipe had become blocked, and at about 9.30 p.m., during the time the engine was standing, Slocombe and Mackenzie disconnected and cleared the pipe, but before doing so, to avoid wasting any sand (during the necessary testing of the pipe under attention) from the opposite pipe, Slocombe put in some cotton waste from the bottom. Immediately they had again connected the left pipe a starting signal was given by the shunters, but as soon as the engine had been set in motion, remembering the cotton waste which he had placed in the right hand pipe, Slocombe at once requested Mackenzie to get off the engine and try to remove it by tapping the pipe with a spanner; whilst doing that Mackenzie slipped, with the result that his right hand got on the rail and the two fingers mentioned were run over and cut off.</p>	<p>In this case there is no direct evidence to show how this mishap occurred. Whilst the waggons were being lowered towards the tip Phillips saw Jenkins attending to the hand brake of the second waggon, but after the mishap it was found that the first waggon had been uncoupled. From this I am inclined to think that instead of using the shunting pole for uncoupling, even whilst the waggons were in motion, Jenkins went between them, and after detaching the first waggon by hand, when returning to the side of the waggon he was crushed between the buffers.</p> <p>A. F.</p> <p>In this case the mishap occurred whilst Mackenzie was trying to comply with instructions of the engine driver W. Slocombe, which in my opinion, and as admitted by Slocombe, should not have been given during the time the engine was in motion.</p> <p>A. F.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN ...	<p>Date of Accident—5th April, 1902. Place at which Accident happened—Bridgeton Bank Marshalling Sidings. Name of Person injured—Samuel Ferguson. Age of Person injured—32. Capacity in which employed—Spare brakeman. Number of booked working hours per diem—10. How long on duty at time of Accident—5½ hours. Nature of Injury—Left knee out.</p> <p>Description of Accident—Ferguson had worked in charge of the 8 a.m. mineral train from St. Rollox to Bridgeton Bank, and when shunting his brake van into No. 5 siding in connection with the forming of his return train, and whilst running alongside the moving van for uncoupling purposes, he momentarily forgot the position of the No. 5 hand point lever, and colliding with the same, he fell on the lever and frame and received injuries as stated above.</p> <p>Date of Accident—24th April, 1902. Place at which Accident happened—Ross Junction. Name of Person injured—Peter Patullo. Age of Person injured—31. Capacity in which employed—Waggon examiner. Number of booked working hours per diem—12, with 2 hours off for meals. How long on duty at time of Accident—5 hours. Nature of Injury—Right toes injured.</p> <p>Description of Accident—At Ross Junction a number of waggons from Ross Colliery were placed at the south end of the sidings from which point they were run by gravitation into other sidings for marshalling purposes. While this was being done Patullo observed that the pin at one side of the end door of a waggon was not secured. To get the pin in position he, while the waggons were as far apart as the couplings would permit, placed one end of a sprag against the door and the other end against the end of the adjoining waggon, so that when the vehicles came together the end door would be forced in position. After this was done Patullo climbed upon the buffers of the vehicles to adjust some large pieces of coal which he had removed from the end of the waggon to permit of the door being closed, and while stepping from the vehicle to the ground his right foot was caught between that vehicle and the adjoining one and so injured as to cause him to be off duty 14 days.</p> <p>Date of Accident—3rd May, 1902. Place at which Accident happened—Whifflet. Name of Person injured—Alexander Pirie. Age of Person injured—17. Nature of Injury—Both arms run over necessitating amputation.</p> <p>Description of Accident—Pirie was employed as a clerk or number taker at Whifflet by the Railway Clearing House. On the 2nd May he went on duty at 6 p.m., for 13 hours, but at about 1.30 the following morning he fell with both arms across a rail in front of the rear wheel of a waggon in motion. No one witnessed the mishap, but from his own evidence, as well as</p>	<p>In this case, seeing that Ferguson had only just previously left the hand points, I am inclined to think that he was not as careful as he might have been, but at the same time I am strongly of opinion that the primary cause of this mishap, which might have been far more serious, was the position of the lever in question, for although between the No. 5 siding and the next adjoining loop line there is a space of 16 feet, the lever over which Ferguson stumbled is fixed within 2 feet 9 inches of the rail, and so forms an unnecessary dangerous obstruction in the path the men have to use.</p> <p>In this case Patullo disregarded his instructions, which are that "when a waggon arrives in the sidings with the end door not properly secured or in any other way defective he must label the vehicle for the siding set apart for the purpose of making good the defects."</p> <p>He neglected to do this, and also to inform any of the shunters what he was about to do, although he fully admits that he knew shunting operations were being performed, and therefore he is alone to blame for the accident.</p> <p>J. J. H.</p> <p>In this case, although the accident may be considered as being due to misadventure on the part of the injured youth, I am strongly of opinion that had the exchange sidings been properly lighted in accordance with the recommendation in my report R. 1632, 1901, respecting the fatal accident which occurred on 24th January, 1901, to R. S. Bowie, who was also a Railway Clearing-house clerk, Pirie would have seen the position of the moving wag-</p>	<p>For future safety I recommend that the point lever over which Ferguson fell, and others in a similar position in the same marshalling sidings, should be set well back from the rails, besides which, I suggest that when this is done the point rods should be protected with side timbers similar to the now almost general practice on some of the English railways.</p> <p>A. F.</p> <p>I was informed by the Company's representative, who attended my inquiry, that the question of lighting these sidings is being jointly considered by the two Companies concerned, but for the safety of the staff employed there I recommend that not only should an early decision be come to, but that the work should be completed as soon as possible.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN— <i>cont.</i>	<p>from information given by the yardsman on duty, it appears that on arrival of an up goods train at about 1.30 a.m. there were six waggons to detach and ten to attach. After the latter had been placed on the train the six waggons were propelled into the shunting neck, from which, by gravitation, they were run into the No. 2 exchange siding. Whilst the last shunt was being made Pirie hurried from the Railway Clearing House cabin, which is situated between the Caledonian Company's goods line and the No. 1 exchange siding, about 80 yards south of the shunting neck, expecting from the movements of the engine which he had heard whilst in the cabin that the waggons had by then been placed in the No. 2 siding, but as he was crossing that siding he saw that the waggons were only just then running in, and for his own safety he made a special effort to get clear and did so, but unfortunately he stepped on a sprag that was lying between the No. 2 and No. 3 lines, and the sprag moving outwards, caused him to fall backwards on to the side of the first waggon and from there to the ballast, during which his arms got across the rail in front of the rear wheel, with the result stated above.</p> <p>Date of Accident—26th May, 1902. Place at which Accident happened—Colville's Siding, near Flemington. Name of Person injured—Martin Glancy. Age of person injured—22. Capacity in which employed—Brakesman. Number of booked working hours per diem—12. How long on duty at time of Accident—2 hours 20 minutes. Nature of Injury—Left side, knee, and arm injured.</p> <p>Description of Accident—Glancy was working with an engine which was chiefly engaged shunting in the various sidings in and about Messrs. Colville and Company's steel works. While in the act of throwing over the lever of a pair of tumbler points for the shunting engine to be taken from the shunting neck to what is known as "Colville's Bank siding," the end of his coupling pole, which was on his shoulder, was struck by the engine of the 11.33 a.m. passenger train from Glasgow to Newmains, causing him to lose his balance and fall towards the rear of the engine by which he was struck and thrown against the footboard of the leading vehicle, with the result that he was so injured that he was still off duty when the inquiry was made.</p> <p>Date of Accident—3rd June, 1902. Place at which Accident happened—Awe Crossing (between Loch Awe and Tayneult). Name of Person killed—Charles McNab. Age of Person killed—24. Capacity in which employed—Fireman. Number of booked working hours per diem—11½. How long on duty at time of Accident—1 hour.</p> <p>Description of Accident—McNab, with engine driver A. McKillop,</p>	<p>gons and the path he was taking, and this very serious accident might not have happened.</p> <p>The traffic passing through these exchange sidings by the Caledonian and North British Companies is very heavy, and yet there is now only one single burner lamp provided.</p> <p>The points in question are fixed in the centre between the up main line and shunting neck, where the space between the lines is 7 feet 3 inches.</p> <p>Glancy had a good view of the approach of the passenger train if he had looked in that direction, and the driver sounded his whistle twice, but he failed to hear the warning, probably owing to the noise made by other engines shunting in the vicinity.</p> <p>The mishap was due to Glancy turning round when in the act of throwing over the point lever, and allowing the end of his coupling pole to become foul of the up main line just at the moment that the engine of a passenger train was passing the spot. There was no necessity for Glancy to be at the side nearest to the main line while throwing over the point lever, and he neglected to keep a proper look-out. Therefore he is alone to blame for the accident.</p> <p>Between the 51½ and 55½ mile posts from Callander, there are 14 automatic signals arranged at suitable points and connected with wires which are placed along the north or hill side of the line, so that in case a large stone should roll down the mountain on to the railway immediately the</p>	<p>With a view to preventing other accidents of a similar nature, the points in question, and another pair similarly fixed about 30 yards westwards, might with advantage be removed to the north side of the weigh siding which runs parallel with the shunting neck, where there is ample space for the points being fixed well clear of all lines.</p> <p>J. J. H.</p> <p>For future safety I recommend that the overhead wire referred to should be placed well above all passing trains or engines, and that to avoid enginemmen having to go to the back of the tenders to get water for footplate purposes, a tap should be placed at the footplate end of the tenders.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>CALEDONIAN—cont.</b>	<p>was working the 6 a.m. mixed train from Oban to Callander with engine No. 187. The train arrived at Awe Crossing or Tablet Station at 6.43 a.m., where it had to cross the 6.20 a.m. down mixed train from Dalmally which arrived at 6.45 a.m. During the time the train was standing McNab was engaged in sweeping up the footboard, but from the evidence of signalman R. Morrison, who seems to have watched his movements from the tablet changing platform, it appears that immediately the train was taken forward McNab went to the back of the tender with a bucket as if to get some water from the tank for throwing on the coal. After the train had run a distance of about 180 yards, and whilst McNab was standing on the coal, he was struck by an overhead automatic signal wire and forced over the rear end of the tender, then falling between the latter and the leading vehicle into the four-foot way, he received injuries from which he died at 8.30 the same morning.</p> <p>Date of Accident—11th June, 1902. Place at which Accident happened—Lanark. Name of Person injured—Robert Murray. Age of Person injured—18. Capacity in which employed—Goods porter. Number of booked working hours per diem—12. How long on duty at time of Accident—9½ hours. Nature of Injury—Left leg severely crushed.</p> <p>Description of Accident—At about 3.30 p.m., whilst Murray was assisting to unload bags of flour from one of eight waggons standing in the goods shed line, one of the bags slipped from the waggon and fell between the latter and the face of the platform. Murray and a man named W. Peat at once attempted to lift the bag up to the platform, but whilst they were so engaged some waggons loaded with sheep were run into the same siding with such force as to move the eight standing waggons a distance of at least six yards, with the result that Murray's left leg was crushed between the axle box of the waggon and the bag of flour at which he was working, and so injured that at the time of my inquiry he was still off duty.</p> <p>Date of Accident—14th June, 1902. Place at which Accident happened—Garnkirk. Name of Person injured—Joseph Hill. Age of Person injured—29. Capacity in which employed—Brakesman. Number of booked working hours per diem—10½. How long on duty at time</p>	<p>wires are broken the respective signals go to danger and certain electric bells are sounded. Thirteen of these signals are placed on the south or loch side of the line and are worked by over-head wires. In some cases the over-head wires are well clear of all passing engines, but the one in question, <i>i.e.</i>, the one nearest the Awe Crossing, is only 13 feet 4 inches above rail level, or 7 inches higher than the chimney of engine No. 187. The tender attached to this engine is a large one, and it is said that on the morning of the mishap the coal must have been level with the top of the cab, so that very probably there was not more than 15 inches clearance between the coal and the wire.</p> <p>Seeing that the engine had been standing at the Tablet Station for at least three minutes, there certainly could not be any real necessity for McNab to have gone to the back of the tender for water, and as in so doing he was acting contrary to the Company's special instructions and also Rule 24a, he was responsible for the accident.</p> <p>On the date of the mishap there was a large cattle fair at Lanark, and in consequence of the heavy traffic much extra shunting was necessary, and for marshalling purposes some of the waggons had to be placed on the goods shed siding.</p> <p>The yard foreman J. Leisham and brakesman J. Gibson were in charge of the shunting, and it was arranged (contrary to Rule 113b) that as Gibson detached and loosened the waggons into the siding Leisham should brake them into the required position, but for some reason Leisham failed to apply the brakes sufficiently, with the result stated.</p> <p>Both Gibson and Leisham were aware that men were working at the standing waggons, and having acted contrary to the rule referred to, and failed to comply with Rule 112a, I am of opinion that they are equally to blame for the accident.</p> <p>A. F.</p> <p>There was no necessity for Hill to have thus exposed himself to danger. He had a coupling stick in his brake van, but to save himself the trouble of unlocking the door of the van he rode from Gart-</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN—cont.	<p>of Accident—2½ hours. Nature of Injury—Left arm crushed.</p> <p>Description of Accident—Hill was working in charge of a mineral train from Gartsherrie to Garnkirk. The train consisted of the engine, five waggons, and brake van. On arrival at Garnkirk at 6.15 p.m., before the train had been brought to a stand, Hill left his van, and running forward, he got on the buffers between the engine and first waggon, for the purpose of uncoupling the former. He detached with his left foot, but just as he was about to jump off the buffers the driver applied extra brake power, with the result that, as the buffers were pressed, Hill's foot was crushed between the buffer cap and shell.</p>	<p>sherrie on the rear or open part of the van, and then, on reaching Garnkirk, he risked his life in the manner stated.</p> <p>In my opinion this accident was brought about by Hill's own misconduct.</p> <p>A. F.</p>	
	<p>Date of Accident—16th June, 1902.</p> <p>Place at which Accident happened—Dalsersf Colliery, near Ayr Road.</p> <p>Name of Person injured—Thomas McMurtie. Age of Person injured—21. Capacity in which employed—Brakesman. Number of booked working hours per diem—11. How long on duty at time of Accident—8 hours. Nature of Injury—Right ankle sprained.</p> <p>Description of Accident—On the date in question McMurtie was working as second brakesman with an up mineral train from Ross Junction to Dalsersf Colliery, which arrived at 4.20 p.m. The engine was uncoupled and taken round the train, after which the train was propelled over the cross-over road leading from the up to the down main line, and then drawn forward on to the down main line. While this was being done McMurtie jumped on the buffers between the two rear waggons. As soon as the rear vehicle was clear of the points leading to the colliery sidings he signalled the driver back, and while the waggons were being propelled towards the colliery sidings he observed a pair of points sticking, causing the point blades to be half open. He jumped off the buffers to put them right, and when he alighted on the ground he stepped on a piece of rough slag, with the result that his right ankle was so injured as to cause him to be off duty five days.</p>	<p>The evidence was conflicting as to when and where McMurtie jumped upon the waggon buffers; but even from his own statement, he was upon the buffers when passing in sight of the points, and if he had looked he could easily have seen them sticking. Further, it was his duty to see that the points were in proper position before signalling the driver to set back, and having neglected to do this, he must be held responsible for the mishap.</p>	<p>When I visited the spot the points (which were provided, and are supposed to be kept in working order by the Dalsersf Colliery Company) were in the same unsatisfactory condition as on the date of this accident.</p> <p>For future safety the Caledonian Company should be asked to use their influence with the Dalsersf Colliery Company to oil the points regularly, so that they would work properly, as from all appearances they had not, when I tried them, been oiled for a very considerable time. In addition, at and about the spot where this mishap happened, and where it is necessary for the men to walk during shunting operations, the Caledonian Company could with advantage have some ashes or small ballast spread on the top of the rough pieces of slag used for ballast.</p> <p>J. J. H.</p>
	<p>Date of Accident—24th June, 1902.</p> <p>Place at which Accident happened—Carstairs. Name of Person injured—James Struthers. Age of Person injured—36. Capacity in which employed—Goods porter. Number of booked working hours per diem—12. How long on duty at time of Accident—6½ hours. Nature of Injury—Palm of right hand cut.</p> <p>Description of Accident—A tranship van is worked daily in both directions over the Muirkirk and Carstairs branch line. On reaching Carstairs the train conveying the van is necessarily run through the passenger station, and it frequently occurs that certain tranship goods for Muirkirk, which are put out of through trains, are placed in the tranship van at the passenger platform. On reaching the goods yard, unless the van is required in the</p>	<p>Neither of the shunters were aware that Struthers was in the van, consequently they cannot be held responsible for the mishap.</p> <p>Struthers took up the position mentioned at the request of his foreman, A. Copeland, and as the latter fully admits knowing the No. 5 siding was used exclusively for marshalling purposes, and yet acknowledges that it is nothing unusual for him or his men to go to the tranship van for checking purposes without informing the shunters, I certainly think that Copeland is chiefly to blame, although Struthers should have known that more care was necessary.</p>	<p>For future safety I recommend that whenever there are goods in the tranship van either the latter should be taken to the goods shed or the shunters should be requested by the checker to cease shunting in the siding concerned during the time the goods are being checked.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN— <i>cont.</i>	goods shed for taking out or putting in tranship goods, it is at once shunted into the No. 3 siding, ready for the return journey, in which case, if any goods have been put in at the passenger platform, either the goods shed foreman or one of his porters are sent to check them. That was done on the date in question. At the request of foreman A. Copeland, goods porter J. Struthers went to check the tranships, but while he was so engaged other waggons were shunted into the same siding, and by the impact Struthers was thrown down, and his right hand coming in contact with an iron plate was injured as stated above.		
CHESHIRE LINES ..	<p>Date of Accident—11th April, 1902. Place at which Accident happened—Heaton Mersey Sidings, Stockport. Name of Person killed—Henry Brown. Age of Person killed—62. Capacity in which employed—Point cleaner. Number of booked working hours per diem—11½. How long on duty at time of Accident—3¼ hours.</p> <p>Description of Accident—Brown had been engaged as a point cleaner at Heaton Mersey Sidings for 21 years. On the date in question, at about 9.10 a.m., he was seen standing near to a Railway Clearing House number taker's cabin, which is about 20 yards west of the points leading from the shunting neck to the marshalling sidings. At that time two engines (the first a Midland, and the second a Great Central) ran from the loop to the shunting neck unattached. The leading (Midland) engine ran well up the neck, but the one in the rear (<i>i.e.</i>, the Great Central), was brought to a stand as soon as it had cleared the points, and was at once set back into the sidings; about two minutes afterwards the signal was lowered for the Midland engine to enter the sidings, and whilst that was being done the foreman shunter, W. Walker, when going towards the shunting neck, for the purpose of giving a hand signal to the engine driver, saw that Brown was standing between the rails in a stooping position clearing the inlet points. Seeing his danger, Walker, of course, called to him to get clear, but before he could then do so he was knocked down and so injured that he died the following morning.</p> <p>Date of Accident—15th April, 1902. Place at which Accident happened—Brunswick Station, Liverpool. Name of Person killed—George Vickers. Age of Person killed—48. Capacity in which employed—Goods guard. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—13 hours.</p> <p>Description of Accident—The deceased, who was in the employ of the Midland Company, worked in charge of the 10.30 p.m. goods train from Nottingham to Brunswick. On arrival at the latter station, at 10.55 a.m. the following morning, he as usual left the train where the yard staff take charge of it. After leaving his brake van</p>	<p>Although no one saw Brown take up the position at the inlet points, there can be no doubt that he did so immediately the Great Central engine had entered the sidings, and that owing to the noise caused by the moving of engines and waggons in the adjacent sidings, he failed to hear the Midland engine approaching. There was nothing, however, to prevent him seeing the engine, and as owing to the engine being set back, <i>i.e.</i>, tender in front, it would be impossible for the enginemen to see his position, I can only conclude that the mishap was due to want of caution on the part of the deceased.</p> <p>A. F.</p> <p>The mishap appears to have been purely accidental. The driver of the engine by which Vickers was knocked down sounded his engine whistle when approaching the spot, but as there was another engine setting back from the down loop line to the sidings, it is probable that the noise made by it prevented Vickers from hearing the approach of the former engine and train.</p> <p>J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CHESHIRE LINES— <i>cont.</i>	he walked between the down loop line (upon which his train had arrived) and the down main line, and when approaching the Horsfall Street Bridge he attempted to cross the down main line, when he was knocked down and fatally injured by a down passenger train proceeding to Liverpool.		
FURNESS ... ..	<p>Date of Accident—10th May, 1902. Place at which Accident happened—Hindpool North, Barrow. Name of Person injured—Thomas Robinson. Age of Person injured—36. Capacity in which employed—Signalman. Number of booked working hours per diem—8. How long on duty at time of Accident—7 hours. Nature of Injury—Right ankle sprained.</p> <p>Description of Accident—On the night in question Robinson was on duty in Hindpool North Signal Cabin. At about 9 p.m. he left his cabin and went into a field at the west side of the sidings for a natural purpose. To get there he had to cross three sidings, in all of which vehicles were standing. In going he crossed over the buffers of the vehicles, and on returning took the same route, and when alighting from the vehicle at rest in the siding nearest to his cabin he stepped on a piece of rail lying near to and parallel with the outside rail of the siding, and so injured his right ankle as to cause him to be off duty six weeks.</p>	There was no necessity for Robinson to go into the field for the purpose mentioned, as there was a dry closet provided underneath his signal cabin for his use. Further, although the place was in absolute darkness he neglected to take his hand lamp with him, had he done so he might have seen the rail upon which he alighted in time to have prevented the mishap, and I am of opinion that he is alone to blame.	<p>The sidings at and about the place where the mishap happened belong to the Barrow Hematite Steel and Iron Company, and are lighted by electricity, but on Saturday nights (as in this case), and also at holiday times, or when none of the engines or men employed by that firm are at work, the lamps are not lighted, and consequently the Furness Company's men at such times have to perform the shunting operations in absolute darkness. It is, therefore, desirable for future safety that the Company should either make arrangements with the private firm mentioned for the present lamps to be always kept alight while the Company's servants are engaged with the shunting operations, or else they should provide other suitable lamps.</p> <p>J. J. H.</p>
GLASGOW AND SOUTH WESTERN.	<p>Date of Accident—23rd June, 1902. Place at which Accident happened—Port Eglinton Junction. Name of Person injured—Duncan Livingstone. Age of Person injured—45. Capacity in which employed—Porter. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Left side and left hip injured.</p> <p>Description of Accident—On this date the man regularly employed to oil and clean the points was off duty ill, and as Livingstone had had some previous experience with the work, prior to being appointed as a porter at Shields Station, he was sent by the station master there to oil and clean all the points between Shields and Eglinton Street Stations. At about 6.20 p.m., while oiling and cleaning the points leading from the up to the down main line, about 20 yards south of Port Eglinton Junction, he was struck and knocked down by the engine of the 6.15 p.m. passenger train from St. Enoch's to Ayr and so injured that he was off duty eight weeks.</p>	At the spot where this mishap occurred there are six sets of rails, viz., up and down main lines, up and down canal lines, and up and down general terminus lines. The driver of the passenger train saw Livingstone in the four-foot way when about 150 yards from him, and sounded his engine whistle, but owing to the noise made by a goods train passing on the down canal line Livingstone did not hear the warning until it was too late for him to jump clear, with the result that he was struck by the buffer beam of the engine. Livingstone went on duty at 2 p.m., but he was not instructed by the station master at Shields to oil and clean the points until 5.45 p.m., when he demurred, owing to the trains running more frequently at that time of the day than at other times, although during the whole of the day the trains run frequently on this busy section of the line. Although the mishap appears to have been due to misadventure, the station master at Shields is to blame for not arranging for the point cleaning to be performed at a more suitable time during the day.	<p>As a very large number of trains pass over this section of the line the oiling and cleaning of the points is attended with considerable risk to the men engaged therein. The men work alone, and it is very difficult for them at all times to perform their work and to keep a proper look-out for approaching engines or trains; and with a view to the future safety of these men the Company might be asked to consider the advisability of making arrangements for two men to be sent to do the work, who should be instructed that in all cases while one is working the other must act as look-out man.</p> <p>J. J. H.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT EASTERN ...	<p>Date of Accident—27th April, 1902. Place at which Accident happened—Parkeston Locomotive Yard—Name of Person injured—Arthur Warner. Age of Person injured—20. Capacity in which employed—Coalman. Number of booked working hours per diem—11. How long on duty at time of Accident—5½ hours. Nature of Injury—Internal.</p> <p>Description of Accident—Warner was engaged in transferring some coal from a waggon to an engine, and whilst standing with his right foot on a piece of coal, which was resting on the waggon door fastening, his movements forced the piece of coal from its position, with the result that as his foot moved he fell to the ballast below receiving internal injuries which necessitated his being off duty for three weeks.</p>	<p>I am of opinion that in this case the mishap was due to Warner's own want of caution.</p> <p>A. F.</p>	
	<p>Date of Accident—7th May, 1902. Place at which Accident happened—St. Botolphs. Name of Person injured—William Diggins. Age of Person injured—45. Capacity in which employed—Labourer. Number of booked working hours per diem—11½. How long on duty at time of Accident—1¼ hours. Nature of Injury—Ribs fractured.</p> <p>Description of Accident—On the morning in question Diggins and 27 other men were engaged in loading 16 ballast waggons with earth at St. Botolphs. The waggons were loaded before the men took their breakfast at 8 a.m., but on their return at 8.30 a.m. they were employed in getting other earth ready for loading from the bank close to the siding in which the loading waggons were standing.</p> <p>The waggons were standing with stretched couplings, and at about 8.35 a.m. Diggins attempted to pass between the buffers of two of the centre waggons with a view of getting to the other side for a private purpose, but just at that moment an empty waggon was run on to the front end of the train by gravitation from a short siding connected with the shunting neck, and as that closed up to the standing waggons the latter were slightly moved, with the result stated.</p>	<p>The guard, E. C. Finch, had no reason to suppose that any of the labourers were near to the loaded waggons, besides which, in allowing the empty waggon to run back to the train he had no intention of moving the former.</p> <p>In this case, as he fully admits, Diggins acted very unwisely in attempting to pass between the buffers, and in my opinion he is alone to blame for the mishap.</p> <p>A. F.</p>	
	<p>Date of Accident—3rd June, 1902. Place at which Accident happened—Thames Wharf. Name of Person injured—Herbert Francis. Age of Person injured—22. Capacity in which employed—Greaser. Number of booked working hours per diem—12. How long on duty at time of Accident—6¼ hours. Nature of Injury—Right hand cut.</p> <p>Description of Accident—Francis is employed at Thames Wharf. It is his duty to examine and, when necessary, supply grease to all waggons arriving on all down trains. At about 12.30 on the morning in question, after having examined the axle boxes on the six-foot side of a train standing on the down "through" line, Francis crossed at the rear of the brake van with the intention of working along the off side, but whilst doing so he stumbled over an exposed point rod, and falling with his right hand on</p>	<p>In this case I am of opinion that the mishap was due to the exposed condition of the hand point rod over which Francis stumbled.</p>	<p>For future safety I recommend that the point rod in question, and others similarly exposed in the same and adjoining paths, should be cranked to the ballast and protected with side timbers.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>GREAT EASTERN— cont.</b>	<p>an old iron fire-box scoop which had been thrown from an engine, and was then lying near to the hand points, he received injury from which he was off duty for a week.</p> <p>Date of Accident—7th June, 1902. Place at which Accident happened—Norwich Victoria. Name of Person injured—Philip Collett. Age of Person injured—15½. Capacity in which employed—Horse lad. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—3 hours. Nature of Injury—Three fingers of right hand injured.</p> <p>Description of Accident—In this case the two horses that horse shunter E. Feek and Collett had been working with were standing about 40 yards from the stable. While Collett turned round to ask Feek if they had to go to breakfast the horses started towards the stable. To get there it was necessary for the animals to pass between two waggons standing a little apart in No. 2 siding, and when doing so the leading horse swerved to one side, with the result that the trace chain became entangled round the buffer spindle of one of the waggons, and while Collett was attempting to release it the animals started forward, causing his fingers to be caught between the chain and the buffer socket of the waggon, and they were so injured that he was off duty 2 weeks.</p>	<p>The mishap was purely accidental.</p> <p>J. J. H.</p>	
<b>GREAT NORTHERN ...</b>	<p>Date of Accident—12th May, 1902. Place at which Accident happened—Hemsworth Colliery Yard. Name of Person injured—Robert Dixon. Age of Person Injured—36. Capacity in which employed—Goods guard (in service of Lancashire and Yorkshire Railway Company). Number of booked working hours per diem—10. How long on duty at time of Accident—8 hours. Nature of Injury—Left knee injured.</p> <p>Description of Accident—Dixon worked a train from Goole to Hemsworth Colliery, and while engaged in shunting operations there, preparing his train for the return journey, he uncoupled three waggons which had been drawn out of No. 2 siding, and then hurried across to the east side of the sidings to hold the hand points for No. 1 siding, in which the vehicles were required, and while crossing his foot slipped on one of the rails causing him to fall forward with his left knee on the ball of the lever of the points (he was about to hold) so injuring it as to cause him to be still off duty at the time the inquiry was made.</p>	<p>Dixon was working alone, and as his train was running very late, he was anxious to avoid further delay, and ran across the rails to reach the points before the vehicles ran back over them down the falling gradient. The mishap appears to have been chiefly due to Dixon's excess of zeal; at the same time if the place had been well lighted instead of in absolute darkness it might have been prevented.</p>	<p>There appears to be a sufficient number of lamps provided at this place, but, from the evidence given, they are not lighted regularly. When they are alight, as petroleum is used, if it is windy the light is either extinguished or the lamps smoke to such an extent that the light from them is obscured.</p> <p>The Great Northern Company should, I think, be asked to substitute gas for petroleum and make arrangements for the lamps being lighted regularly.</p> <p>In addition, they might, with advantage, have the points in question worked by a lever which will not require holding, 'similar to the others in use in the vicinity. This is very desirable, as the guards have to perform the whole of the shunting operations alone after 8 p.m.</p> <p>J. J. H.</p>
<b>GREAT WESTERN' ...</b>	<p>Date of Accident—7th June, 1902. Place at which Accident happened—Severn Tunnel Junction. Name of Person injured—John Edwards. Age of Person injured—25. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of accident—6 hours. Nature of Injury</p>	<p>It appears that having his attention fixed on the main line train, Edwards momentarily forgot the arrangements he had agreed to as to the twelve empty waggons coming from the "Bristol" sidings.</p> <p>The noise caused by the</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>GREAT WESTERN— cont.</b>	<p>—Right arm fractured and elbow dislocated.</p> <p>Description of Accident—On arrival of an up goods train at 2 a.m., after eight waggons had been detached and six attached, the engine was taken back to the main line for the purpose of shunting the train into the No. 1 "long" siding to allow an up through train to pass. Shunter J. Edwards, who was in charge of the "long" sidings, accompanied the engine back to the main line, and after attaching it to the train he stepped backwards and stood between the rails leading to the No. 2 siding. At that time, as had had been previously arranged between Edwards and another shunter named W. Johnson, twelve empty waggons were propelled through the shunting neck from the "Bristol" to the No. 2 "long" siding, and, failing to notice their approach, Edwards, whilst standing in the position mentioned, and watching the movements of the main line train, was knocked down in the four-foot way and the twelve waggons passed over him.</p>	<p>former would probably prevent his hearing the latter, but there was no reason for his standing between the rails, and, as owing to the position of a good lamp close by he was well able to see his exact position, I am of opinion that in this case the accident, which might have been far more serious, was due to his own want of caution.</p> <p>A. F.</p>	
<b>LANCASHIRE AND YORKSHIRE</b>	<p>Date of Accident—4th April, 1902.</p> <p>Place at which Accident happened—Bolton Engine Sheds. Name of Person killed—Robert Stones. Age of Person killed—37. Capacity in which employed—Engine driver. Number of booked working hours per diem—10½. How long on duty at time of Accident—20 minutes.</p> <p>Description of Accident—On the date in question Stones went on duty at 3.30 a.m. for the purpose of working the Bolton pilot tank engine No. 499. He took the engine from the sheds on the No. 7 road at about 3.45 a.m., and brought it to a stand at the water column, which is situated between the No. 7 and No. 8 roads at the departure end of the outside pit. He then got off the engine and opened the water valve. During the time the engine tank was being filled Stones left the column to put some oil on the slide bars. Whilst he was so engaged his fireman, William Dutton, who had necessarily remained on the tank, called to him to shut off the water, and Stones at once ran to the water column and did so, but just at that moment he was struck by an engine which was then running from the shed in the adjoining No. 8 road, and knocked down, and although the engine was just then on the point of stopping his right leg was seriously crushed by the leading wheel, and he died from the effects about three hours afterwards.</p> <p>Date of Accident—3rd May, 1902.</p> <p>Place at which Accident happened—Blackburn. Name of Person injured—William Birch. Age of Person injured—25. Capacity in which employed—Checker. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—8½ hours. Nature of Injury—Right leg run over.</p> <p>Description of Accident—On the afternoon in question Birch was sent from the goods shed to the</p>	<p>The part of the yard where the accident occurred is well lighted, so that there was no reason why Stones should not have seen that he was standing too near the No. 8 road, and as the engine was carrying a headlight there was nothing to prevent him seeing it approaching.</p> <p>From the evidence given it appears that at the time of the mishap there was a strong opposite wind. I am therefore of opinion that, having his full attention on the working of the water valve, he momentarily forgot to see to his own safety, and the opposite wind prevented him hearing the engine approaching.</p> <p>It was impossible for the driver (George Whitehead) of the moving engine to have acted more promptly than he did.</p> <p>A. F.</p> <p>Birch had been supplied with a copy of the Company's Rules, and he frankly admits that he disregarded Rules 23(a) and 24 by going between the vehicles for coupling purposes, and also, that it was no part of his duty to perform the coupling operations, but he states that he thought that by doing so he would facilitate the work. His</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>north end of the yard to inform the guard working there with the shunting engine that the men employed in the goods shed were waiting for empty waggons to load. While on his way to inform the guard he observed that the waggon nearest to the shed was uncoupled, and he went in between it and the adjoining vehicle and coupled them together with his hands, after which, when coming out from between the vehicles, his brow struck the corner of one of them, causing him to fall backwards with his right leg on the rail. Just at that moment the vehicles were moved by those in front of them being closed up to enable the guard to couple them with his coupling pole before they were pushed into the goods shed, with the result that his right leg was run over and so injured that he was still off duty when the inquiry was held.</p> <p>Date of Accident—5th May, 1902. Place at which Accident happened—Miles Platting. Name of Person injured—George Barcock. Age of Person injured 32. Capacity in which employed—Goods guard. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Back injured.</p> <p>Description of Accident—Barcock worked with a special cattle train from Fleetwood to Windsor Bridge. After this a carriage and his brake-van were taken forward to Miles Platting, and while these two vehicles were being set back from No. 1 down loop line into the yard the brake van (which was the leading vehicle) left the rails and fell over on to its side, with the result that Barcock had his back so injured as to cause him to be off duty three weeks.</p> <p>Date of Accident—7th May, 1902. Place at which Accident happened—Hartford Sidings, Oldham. Name of Person injured—W. Rostron. Age of Person injured—34. Capacity in which employed—Goods guard. Number of booked working hours per diem—10. How long on duty at time of Accident—4 hours. Nature of Injury—Head and right shoulder bruised.</p> <p>Description of Accident—Rostron was working in charge of a local goods train. On reaching Hartford Sidings there were waggons to attach from the up sidings. His engine was taken through the</p>	<p>intentions were no doubt good, but he acted very unwisely, and is alone to blame for the mishap.</p> <p>J. J. H.</p> <p>The points leading from No. 1 down loop line to the yard are 35 yards distant from the Brewery Sidings signal cabin, from which they are worked, and where they are interlocked with the set-back signal.</p> <p>Barcock was on the ground when the points were turned for the yard, and after seeing that they were properly set, and that the set back signal was taken off, he signalled his driver back, and then got inside his brake-van, which directly afterwards left the rails about 16 yards west of the points, and where the first mark was afterwards found on the rails.</p> <p>I am assured that the points have not been interfered with in any way since this mishap happened, and that neither before nor since it occurred has any other vehicle been known to leave the rails at or about the spot.</p> <p>I was unable to ascertain what caused the brake-van in this case to leave the rails as there was nothing to be seen on or about the permanent way to account for it.</p> <p>J. J. H.</p> <p>In this case, although Rostron had no reason to suppose that the waggons would be propelled from the shunting neck, he certainly ought to have noticed the movements, and did wrong in signalling to his driver to set back without first having received a signal from the signalman to do so. Therefore he must be held responsible for the mishap.</p>	<p>The local arrangements mentioned, are of very little advantage to the working, and to avoid any misunderstanding in future, as well as for other points of safety, seeing that the up main line is on a gradient falling from the shunting neck, I recommend that the practice of propelling the waggons to that line should be discontinued.</p> <p>A. F.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE—cont.	<p>cross over road from the down to the up main line, during which time the waggons he had to attach were drawn from the sidings to the shunting neck by the pilot engine.</p> <p>Rostron was not well acquainted with the local workings, and so, after seeing the waggons drawn to the shunting neck when the main line points were reversed, he at once signalled for his driver to set the engine back to the shunting neck to attach the waggons, but before that could be done, according to the local practice, the waggons were propelled to the up main line by the pilot engine, and failing to notice the movements, through having his attention partly given to a goods train then passing on the down line, he was struck by the leading waggon and knocked down.</p> <p>Date of Accident—14th May, 1902. Place at which Accident happened—Mirfield. Name of person injured—Benjamin Sykes. Age of Person injured—32. Capacity in which employed—Fireman. Number of booked working hours per diem—11. How long on duty at time of Accident—55 minutes. Nature of injury—Two fingers of right hand injured.</p> <p>Description of Accident—Sykes was about to work with a ballast train from Mirfield to Horbury. The train had been drawn out of the ballast siding on to the Cleckheaton branch line at No. 6 cabin, from which point it was necessary to propel it for a distance of about <math>\frac{1}{4}</math> of a mile to No. 4 cabin, where it had to be turned on to the main line. While this was being done the engine (which was running bunker first) commenced to slip owing to the rails being slippery with the frost, and as Sykes saw that the sand was not running on to the rails, owing to a slight curve in the lines, he jumped off the footplate taking the hand hammer with him for the purpose of placing it against the sand pipe to press it inwards, so that the sand would run on the rails. While so engaged the hammer slipped off the sand pipe, and his right hand fell on the rail, with the result that two of his fingers were run over and so injured that he was still off duty at the time the inquiry was held.</p> <p>Date of Accident—20th May, 1902. Place at which Accident happened—Newton Heath. Name of Person injured—Albert Hall. Age of Person injured—23. Capacity in which employed—Goods guard. Number of booked working hours per diem—10. How long on duty at time of Accident—6<math>\frac{1}{2}</math> hours. Nature of Injury—Right thigh, left leg, and head injured.</p> <p>Description of Accident—In this case Hall was working a train from the carriage and waggon shops, Newton Heath, to New Allen Street Junction, Manchester. The train consisted of 48 waggons, and had to be propelled from the shops siding along the down slow line until the engine was over the points near Thorpe Bridge Junc-</p>	<p>Sykes is chiefly to blame for the mishap. At the same time it is to be regretted that his driver, J. Procter, who frankly admits that he saw him leave the footplate with the hand hammer, and had an idea what he was about to do, did not forbid him so exposing himself to danger.</p> <p>J. J. H.</p> <p>I am of the opinion that engine driver Robert Hampson applied the engine brakes more violently than there was any necessity for, and that he is chiefly to blame for the mishap. At the same time it might have been avoided if Hall had been provided with a brake van to ride in from Newton Heath to Brewery Sidings, Miles Platting, but a brake van is never provided for the train in question, which runs daily. On arrival at the Brewery Sidings Hall uncoupled the rear 20 waggons, and then walked forward and informed Hampson about</p>	<p>For future safety the Company should be asked to arrange for a brake van being daily placed at the rear of the train in question. Further steps should be taken to ensure strict compliance with Rule 171 (c) at all times.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>tion. While this was being done Hall rode inside the leading vehicle (an empty ballast waggon), and when the engine was over the points mentioned engine driver Robert Hampson applied the vacuum brake of his engine with such force as to throw Hall over the end of the waggon into the six-foot way between the down and up slow lines, with the result that he was injured as stated above, from the effects of which he was off duty 10 days.</p> <p>Date of Accident—22nd May, 1902. Place at which Accident happened—Castleton Sidings. Name of Person injured—Thomas Beresford. Age of Person injured—53. Capacity in which employed—Goods guard. Number of booked working hours per diem—10½. How long on duty at time of Accident—30 minutes. Nature of Injury—Muscles in right thigh strained.</p> <p>Description of Accident—Whilst engaged in shunting operations at Castleton Sidings it was necessary for Beresford to cross the sidings to reverse the position of certain hand points, and when hurrying to do so his foot slipped from one of the rails forming the V crossing, and he fell, with the result stated above.</p>	<p>his accident, when the latter started the train without receiving a signal from Hall to do so. He also neglected to see that his fireman looked for the guard to exchange signals with him after starting, as directed in Rule 171 (f), and as the result of Hall's injuries prevented him going forward with the train to New Allen Street yard it went there, a distance of about ¼ a mile, without a guard. Hampson is to blame for disregarding the rule referred to, but it is evident that, so far as the exchange of signals is concerned, after the trains are started, the rule has not been carried out properly.</p> <p>It appears that at the time of the mishap it was raining heavily, and from Beresford's evidence his wearing of a great coat somewhat retarded his movements.</p> <p>In this case the accident seems to have been due to misadventure.</p> <p style="text-align: right;">A. F.</p>	
	<p>Date of Accident—24th May, 1902. Place at which Accident happened—Wigan. Name of Person killed—Richard Young. Age of Person killed—36. Capacity in which employed—Goods guard. Number of booked working hours per diem—10. How long on duty at time of Accident—7½ hours.</p> <p>Description of Accident—On arrival of the 10.50 p.m. goods train from Southport at 1.10 a.m. there were five waggons to detach. Before the guard, J. Hardman, could get from the rear to the front of the train Young, who was working in charge of the Wigan shunting engine, had detached the waggons, and with the train engine had placed them in the shunting neck in front of the shunting engine, which was then waiting to propel them into the goods yard. After the train engine had been taken back to the main line Young, who was then standing between the shunting neck and up main line, signalled for it to be set back on to the train, and then immediately turned round and gave another signal for the shunting engine to push the five waggons into the yard. Whilst giving the last-mentioned signal he evidently got too near the main line, for as the train engine was setting back to its train he was struck by it and knocked on to the side of the waggons then in motion in the shunting neck, and received injuries from which he died shortly afterwards.</p>	<p>There was no necessity for Young to have signalled for both engines to approach him from opposite directions at the same time, and as he apparently intended to remain near to the main line for the purpose of coupling the engine to the train, seeing that the space between the main line and shunting neck is not more than 5 feet 9 inches, and that there was no fixed light by which he could see his exact position, I certainly think he acted very unwisely in doing so, but taking into consideration that his desire was solely for the purpose of facilitating the work I am of opinion that in this case the accident was due to misadventure.</p>	<p>For future safety I recommend that, if possible, more space should be provided between the main line and shunting neck referred to, and that at least two good lamps should be provided and suitably fixed for lighting the paths the men have to take.</p> <p style="text-align: right;">A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>Date of Accident—27th May, 1902. Place at which Accident happened—Goole. Name of Person injured—Benjamin Miller. Age of Person injured—37. Capacity in which employed—Extra goods porter. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—13½ hours, with two hours off for meals. Nature of Injury—Left foot injured.</p> <p>Description of Accident—Owing to the height of the stage of the sugar shed the doors of waggons have to be opened before the waggons are placed alongside the stage. To keep the doors clear of the stage this Company's waggons are fitted with hasps, which are placed in the staples fixed on the sides of the waggons. Miller had assisted to load a waggon with about 100 cases of sugar, and when the vehicle was drawn by an engine clear of the stage he followed it for the purpose of closing and securing the doors, and when reaching upwards, placing the pin in position while the vehicle was in motion, he caught his left foot against a point lever and fell, so injuring his foot as to cause him to be off duty four days.</p>	<p>It was no part of Miller's duty to secure the waggon doors, but he was afraid that some of the cases would fall out while the vehicle was being drawn forward. His intentions were good, and as he could not see the point lever over which he fell, while looking upwards to put the pin in position to secure the door, the mishap was chiefly due to his excess of zeal; at the same time, after having been on duty for such a long period, he could hardly be so alert as was desirable.</p> <p>From the evidence given it appears that the practice of closing the waggon doors, and also tying the sheet strings while the vehicles are in motion, is far too general at this place.</p>	<p>For future safety the Company should make arrangements for the waggons to be brought to rest as soon as they are clear of the stage referred to, and allowed to stand there until all the doors are closed and fastened, and also until all the sheets have been properly secured. Besides, as the point lever over which Miller fell is only 3 feet 8 inches from the running line, it might with advantage be removed further back.</p> <p>J. J. H.</p>
	<p>Date of Accident—28th May, 1902. Place at which Accident happened—Luddendenfoot. Name of Person injured—David Cornforth. Age of Person injured—22. Capacity in which employed—Goods porter. Number of booked working hours per diem—12. How long on duty at time of Accident—3½ hours. Nature of injury—Thumb of right hand crushed.</p> <p>Description of Accident—On the morning in question several men, including Cornforth, were working at different waggons standing in the No. 3 siding. At about 10.30 Cornforth was necessarily between the tenth and eleventh waggons from the entrance for the purpose of untying a sheet cord which, instead of being passed through the ring provided for the purpose, had very improperly been fastened round the draw-bar of the eleventh waggon. At that time the shunter, A. Sunderland, required to slightly move the waggons, so as to clear the fouling point of an adjoining siding. Seeing other porters at work on the waggons near the entrance he called to them to stand clear, and they did so, but, unfortunately, he could not see Cornforth, and the latter did not hear the call. The waggons were standing with stretched couplings, and the draw-bar at which Cornforth was working was pulled slightly from the headstock, and as the waggons were closed up unexpectedly his right hand slipped from the cord and his thumb was crushed between the shoulder on the draw-bar and the face of the headstock.</p>	<p>In this case, as he fully admits, shunter A. Sunderland is to blame for moving the standing waggons without first seeing that <i>all persons were clear</i>; at the same time it is only fair to say that the movement of the waggon at which Cornforth was working was so slight that, except for his being engaged in the act mentioned, I do not think any mishap could have occurred.</p>	<p>To avoid men having to take up such positions, as it was necessary for Cornforth to do in this case, I recommend that the practice of tying sheet cords round the draw-bar hooks of waggons should be forbidden.</p> <p>A. F.</p>
	<p>Date of Accident—28th May, 1902. Place at which Accident happened—Oldham Road, Manchester. Name of Person injured—George Richard Harrison. Age of Person injured—31. Capacity in which employed—</p>	<p>In this case the accident appears to have been chiefly due to a misunderstanding on the part of Richardson. He had on several occasions during</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>Capstanman. Number of booked working hours per diem—12. How long on duty at time of Accident—3½ hours. Nature of Injury—Internal.</p> <p>Description of Accident—At Oldham Road there are high and low level goods yards, between which certain waggons are worked by hoists. The waggons are hauled to and from the hoists by capstans.</p> <p>Harrison is responsible for the working of the hoists and the capstans, but he is assisted by a scotcher or brakesman, and a hooker-on. As is customary in such cases for training purposes the scotcher is occasionally allowed to work the capstans under the supervision of the capstanman, and on the morning in question the scotcher, J. Richardson, who assists Harrison was allowed to do so. At 9.15 a.m. there were four waggons ready to be lowered to the bottom yard, and about that time Harrison walked on the balcony alongside the "Old" hoist to inform the men below that after the four waggons had been lowered he and his assistants would take their breakfast. When returning to the front of the hoist he noticed that the hoist scotchies, which are worked by levers, were in their wrong position, and so he went on the hoist for the purpose of reversing them, but after he had put up the back scotch, and just when in the act of pulling off the one nearest to the capstan, he was struck by a waggon which Richardson, owing to a misunderstanding, had run to the hoist, and being crushed between the corner of the waggon and the side wall of the switch room adjoining the hoist shaft he received injuries from which, at the time of my inquiry, he was still off duty.</p> <p>Date of Accident—9th June, 1902. Place at which Accident happened—Wakefield. Name of Person killed—Benjamin Whiteley. Age of Person killed—25. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—1 hour.</p> <p>Description of Accident—In this case the 5.30 p.m. goods train ex Goole arrived at Wakefield at 11.30 p.m., and was brought to rest on the up goods line, after which the guard, David Chappell, uncoupled the 12 vehicles next the engine, to place them in No. 7 up exchange siding, and signalled his driver ahead over the points leading there. While this was being done, the deceased walked with Chappell towards the points, and when the rear vehicle was over them, he signalled to the signalman on duty in Farmer's Lane signal cabin to set the points for the sidings. After seeing that the points were properly set, he signalled the driver back, and also took the "tonnage" tickets from Chappell, and then walked alongside the vehicles while they were set back into the siding. Owing to the lines being on a curve, it was necessary for Chappell to remain near the points for signalling purposes, and while he stood there he heard a noise as if a</p>	<p>the morning worked the capstan at Harrison's request, and when Harrison went on the hoist to reverse the scotchies, Richardson evidently mistook a certain movement of his arm for a signal to place the first of the four standing waggons on the hoist; at the same time, and, as he fully admits, even if the movement of Harrison's arm (of which he has no knowledge) had been intended for a signal, before running the waggon on the hoist, knowing the capstanman's duties, Richardson should have seen that the scotchies had been properly set. Had he done so he might have seen Harrison's position, and for having neglected to do so he is certainly somewhat to blame.</p> <p>A. F.</p> <p>No one saw the accident occur, but it is assumed that the deceased, as usual, was placing the "tonnage" tickets in the label clip of the loading waggon when he accidentally stumbled and fell across the rail between that waggon and the adjoining one.</p> <p>The trains on this line are made up on the tonnage system, and the tickets in question show the weight of each waggon and the contents.</p> <p>J. J. H.</p>	



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	waggon had left the rails, and he at once signalled the driver to stop. He then walked forward to ascertain what had caused the noise, when he found the deceased lying with his body across the outside rail quite dead, five waggons having passed over him, and one empty waggon was off the rail.		
LONDON AND NORTH-WESTERN.	<p>Date of Accident—17th April, 1902. Place at which Accident happened—Poplar. Name of Person injured—William Waterson. Age of Person injured—39. Capacity in which employed—Extra Goods Porter. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—3½ hours. Nature of Injury—Skull fractured.</p> <p>Description of Accident—At about 9.45 a.m. on the date in question, Waterson was removing a sheet from a waggon, for which purpose it was necessary for him to stand upon the top of the contents of the vehicle while it was at rest in what is known as the cartage line of the up shed road, and while so engaged, the vehicle was moved so violently as to cause him to be thrown over the end of it into the four-foot way, and as he fell his head struck the draw-bar, with the result that his skull was so injured that he was still off duty at the time the inquiry was held.</p> <p>Date of Accident—18th April, 1902. Place at which Accident happened—Coventry. Name of Person injured—George Harry Knight. Age of Person injured—35. Capacity in which employed—Horse shunter. Number of booked working hours per diem—12, with 2 hours off for meals. How long on duty at time of Accident—6½ hours. Nature of Injury—Right knee bruised.</p> <p>Description of Accident—At about 12.30 a.m. on the day in question, it was necessary for Knight with his horse to move two empty waggons from the "shed road" to the "middle road." The vehicles had first to be drawn southwards over a pair of hand points fixed just outside the goods shed, and then from there northwards into the "middle road." For this purpose Knight attached his horse-chain to the centre link of the coupling of the leading waggon, after which he started his horse ahead, and as he was working alone, it was necessary for him to leave his horse while he held the hand points mentioned. During the time he was so engaged his horse had drawn the vehicles some distance away, and while running towards them for the purpose of applying the brakes, it was necessary for him to cross over from the west to the east side of the vehicles, as they were only fitted with brakes at the latter side, and while doing so he fell over a point handle, so injuring his right knee as to cause him to be off duty three weeks.</p> <p>Date of Accident—23rd April, 1902. Place at which Accident happened—Southam and Long Itchington. Name of Person injured—John Bennett. Age of Person injured—37.</p>	<p>In this case, while Waterson was engaged as stated, goods porter, Owen Powell, while placing another vehicle in position under a crane with a capstan, moved the vehicle from which Waterson was removing the sheet, and although Powell states that he called out "Hold tight Cartage line" before setting the capstan in motion, it is evident his call was not heard by either Waterson or checker, George Smith, who was working with him.</p> <p>It was no part of Powell's duty to work the capstan, and he was forbidden to do so by his foreman checker, R. Walsham, therefore Powell is alone to blame for the mishap.</p> <p>J. J. H.</p> <p>The mishap was chiefly due to Knight having no one to assist him with the horse shunting, and would probably have been avoided if he had had an assistant to hold the hand points. This accident happened within 35 yards of the main line, upon which trains and engines are constantly passing and re-passing, and in accordance with Rule 110, Knight should have had hold of his horse's head while it was drawing the vehicles.</p> <p>In this case Bennett, after having been properly warned, should have ascertained whether the shunting was completed or not</p>	<p>For future safety the Company should be pressed to appoint a second man or youth to assist their horse shunters, especially at such busy places as Coventry, where the horse shunting is heavy, and where there are a number of turntables and points to hold (as in this case), while the vehicles are being taken from one siding to another.</p> <p>The horse shunters also have to attend to the brakes of the vehicles, attach and detach their horse chains, and when so engaged, they cannot possibly attend to their horses according to the instructions laid down in Rule 110.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN—cont.	<p>Capacity in which employed—Ganger. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—8½ hours. Nature of Injury—Forehead injured.</p> <p>Description of Accident.—On the afternoon in question, Bennett and platelayer, William Walker, were engaged unloading a waggon which stood second from the buffer stops in the cattle dock siding; while so engaged, brakesman, Thomas Dowles, warned them that shunting operations were about to commence, and they got out of the waggon. A number of waggons standing at the east end of the siding were then drawn out, but four were left standing in front of the one the men were engaged at. After an interval of about 10 minutes Bennett, thinking that the shunting operations were completed, got into the waggon again, and when some vehicles were shunted into the siding, they struck the four vehicles referred to, which, in turn, struck the waggon Bennett was standing in, causing him to be thrown over the end into the four-foot way, with the result that he had his forehead slightly injured, which necessitated him being off duty four days.</p> <p>Date of Accident—26th May, 1902. Place at which Accident happened—Nuneaton. Name of Person injured—George White. Age of Person injured—30. Capacity in which employed—Ballast guard. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—5 hours. Nature of Injury—Forehead cut and head bruised.</p> <p>Description of Accident.—On this date the ballast train which White usually worked with was not running, consequently he and his flagman, George Mills, were sent to clean up the road at the south end of the station. To do so the dirt and spent ballast were first thrown into heaps in the four-foot way of the up third line and afterwards placed in a wheelbarrow by Mills and taken away. While White was working at the points leading from the up third line to the up main line the driver of a goods train passing on the adjoining line called to him and he turned round for a few moments to speak to him, after which, while in the act of turning round again to resume work, he was struck and knocked down by the first of two light engines (coupled together) travelling from the up third line to the up main line.</p>	<p>before getting into the waggon again, and his neglecting to do so was the cause of the mishap, consequently he is alone to blame.</p> <p>J. J. H.</p> <p>White and Mills were working about six yards apart, the former at the left hand side and the latter at the right hand side of the up third line. Mills saw the light engines approaching and called out to White "Look out," but the latter did not hear the call owing to the noise made by the goods train which was passing on the adjoining line. The light engines had been standing waiting for the signal to be lowered and started from a point about 50 yards from where White was working. The leading engine, in charge of driver Thomas Cumliffe, was running tender first, consequently he was at the opposite side to that on which White was working, but he did not see Mills or even his wheelbarrow which was at his side. Cumliffe's fireman, George Wolfe, and Joseph Heath, driver of the second engine (which was running engine first), were, or ought to have been, at the side on which White was working, yet neither of them saw him until he was falling after the engine had struck him. Heath states that he was looking ahead for signals and never looked for anyone on the ground, but there was no reason why he, Wolfe, and Cumliffe should not have done so—the last named before starting. They had a clear view, and had they been keeping a proper</p>	<p>The number of cases in which enginemen have failed to see men at work foul of the permanent way are so numerous that it appears that they are in the habit of disregarding Rules 139 and 153. Therefore it is desirable that steps should be taken to more strictly enforce these rules, and as a further precaution a look-out man should be appointed (at such busy places as Nuneaton) to warn men working foul of the running lines, as it is almost impossible for them in all cases to perform their work and at the same time keep a proper look out for their own safety,</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>LONDON AND NORTH-WESTERN—<i>cont.</i></b>	<p>Date of Accident—26th May, 1902. Place at which Accident happened—Garston Dock. Name of Person injured—Walter Hollis. Age of Person injured—23. Capacity in which employed—Joiner's labourer. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—5 hours. Nature of Injury—Jaw injured.</p> <p>Description of Accident.—At 11.0 a.m. on the day in question while Hollis was carrying two planks (1 foot broad and 6 and 8 feet long respectively) upon his shoulder, owing to a strong wind blowing from the north, he walked between the "empty road" and the "full road" at the south side of the vehicles standing in the latter road. On reaching the west end of the leading vehicle a gust of wind caused the planks to swing round and also to partly fall off his shoulder on to the buffers and his left hand to become jammed between the leading buffer-shell and the head of the leading vehicle, and before he could release his hand to move the planks the longer one was struck by the leading vehicle of six which were being propelled into the "empty road" causing the plank to strike his jaw, so injuring it as to cause him to be off duty four days.</p> <p>Date of Accident—27th May, 1902. Place at which Accident happened—Lancaster. Name of Person injured.—Robert John Armer. Age of Person injured—27. Capacity in which employed—Fireman. Number of booked working hours per diem—11½. How long on duty at time of Accident—6½ hours. Nature of Injury.—Forefinger of right hand taken off and adjoining finger injured.</p> <p>Description of Accident.—On the date in question Armer worked with the 3.20 p.m. goods train from Oxenholme to Lancaster, and during shunting operations at the latter station it was necessary for about 30 waggons to be taken from the down sidings across the main lines to the up sidings. While this was being done the sand would not run through the pipe owing to its having become wet, causing it to lodge at the bottom of the pipe, and as the engine was slipping very badly it was necessary to get the sand to run on the rail. For this purpose Armer left the foot-plate of his engine in motion, and while knocking or tapping the sand-pipe with a screw-key he</p>	<p>look-out ahead, in accordance with Rule 139, they might have seen White and warned him, as directed in Rule 153, or, if necessary, brought their engines to rest, and so avoided the mishap. At the same time White is not free from blame, for neglecting to look round before attempting to resume work foul of the up third line.</p> <p>The mishap appears to have been due to misadventure.</p> <p>J. J. H.</p> <p>When Armer left the foot-plate of his engine it was drawing about 30 waggons up a rising gradient of 1 in 95, and could hardly take such a number of vehicles up such a steep incline while slipping so badly. At the time the engine was travelling along the shunting neck at the down side and could have been brought to rest until the bottom of the sand pipe was cleared, and it is to be regretted that this was not done. At the same time it appears from the evidence that it is the practice (in the absence of any instructions to the contrary) for the men to leave the foot-plates of their engines in motion to perform the same operation as Armer was engaged with. This is done with a view of forwarding the work, and the mishap was chiefly due to Armer's excess of zeal.</p>	<p>So many accidents have occurred to enginemen through their leaving the foot-plates of their engines in motion for various purposes, that it is desirable that special instructions should be issued strictly forbidding the practice. Some of the other Companies have issued orders to this effect with good results.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH WESTERN—cont.	<p>caught his foot against the end of a check-rail and fell with his right hand between the check-rail and the running line, where it was caught by the engine wheel and so injured as to cause him to be off duty 6½ weeks.</p>	<p>The driver, R. Laycock, does not appear to be to blame, he did not see Armer leave the foot-plate owing to looking ahead at the opposite side of the engine for signals, and being so busily engaged opening and shutting the regulator with a view to prevent the engine slipping.</p>	
	<p>Date of Accident—3rd June, 1902. Place at which Accident happened—Crown Street, Liverpool. Name of Person injured—Joseph Lofthouse. Age of Person injured—39. Capacity in which employed—Horse shunter. Number of booked working hours per diem—11½, with 1½ hours off for meals. How long on duty at time of Accident—9 hours. Nature of Injury.—Right ankle bruised; off duty three days.</p> <p>Description of Accident—At about 2.0 a.m., Lofthouse and brakesman Thomas Kinvig with two horses were engaged taking a waggon loaded with coal from the new main line to the Sutton Heath Colliery siding. To get it there it was necessary to turn it on a turntable, and while this was being done the leading horse suddenly swerved to one side and with its left forefoot struck Lofthouse on the right ankle knocking him down, with the result stated above.</p>	<p>The lines and sidings at and about the spot where this mishap happened are let to the Sutton Heath Coal Company and other colliery companies and coal Merchants. Although the mishap appears to have been accidental if the place had been well lighted instead of in absolute darkness Lofthouse might have seen the horse's movements in time to have avoided the accident.</p>	<p>Owing to the construction of this extensive yard all the shunting is performed by horses. To get the waggons to and from the various private sidings they have to be turned on turntables, and all waggons to and from the Company's Crown Street goods shed have to be taken along the new main line. The horse shunting is very heavy during the dark, especially where this accident happened, and the Company should use their influence with the private firms for the sidings to be adequately lighted without delay.</p>
	<p>Date of Accident—5th June, 1902. Place at which Accident happened—Edge Hill, Liverpool. Name of Person injured—Alfred Lamb. Age of Person injured—31. Capacity in which employed—Brakesman acting as shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—3½ hours. Nature of Injury—Injured internally. Off duty 3 days.</p> <p>Description of Accident—All the shunting operations at this place are performed by gravitation. In this case Lamb accompanied two waggons for the purpose of steady-ing them down the incline, and while doing so, he rode upon his brake-stick. After the vehicles had travelled about 180 yards, they came in contact with some other vehicles at rest, causing him to be thrown off the brake-stick on to the ground, with the result stated above.</p>	<p>When the shunters accompany the vehicles for long distances down these extensive sidings, they make a practice of riding upon their brake-sticks which they place on the top of the brake lever and underneath the waggon spring. There is no order forbidding the practice. The accident is one of a number which may be expected so long as the men are permitted to ride upon their brake-sticks. As a proof of this, shunter R. Bell was injured at the same place on June 19th, and shunter F. Humphreys on August 20th, while so engaged.</p>	<p>The practice of men riding for such long distances upon their brake-sticks, with one end placed underneath the spring of the vehicle in the manner described, is such a dangerous operation, that for future safety the Company should take steps to abolish it.</p>
LONDON AND NORTH WESTERN AND GREAT WESTERN JOINT.	<p>Date of Accident—5th May, 1902. Place at which Accident happened—Cathcart Street, Birkenhead. Name of Person injured—Edward Greer. Age of Person injured—31. Capacity in which employed—Gate-man. Number of booked working hours per diem—12, with 1 hour off for meals. How long on duty at time of Accident—8½ hours. Nature of injury—Back, ribs, breast bone, and left shoulder injured.</p> <p>Description of Accident—At about 2.30 p.m., while two waggons were being loose shunted from an engine owing to a misunderstanding between shunters John Williams and Edward Brassey, the rear vehicle was derailed at a pair of points. As the engine could not</p>	<p>It was no part of Greer's duty to assist to re-rail the waggon, but seeing that the shunters were in difficulties, he went from his post at the crossing gates to help them. However, he was not aware that previous to his arrival at the spot, the prop had slipped when both Williams and Brassey had attempted to use it. Greer was inexperienced in railway work, and had not been supplied with a copy of the rules in accordance with Rule 17(a). Under these circumstances he does not appear to be to blame. In my opinion the</p>	<p>For future safety the men should be strictly forbidden to use the pit props for any purpose whatever and the Joint Companies should supply their gatemen with a copy of the general rules, in accordance with their own rules.</p>

J. J. H.

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REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN AND GREAT WESTERN JOINT— <i>cont.</i>	<p>be taken against the vehicle before attempting to re-rail it, Williams (who was in charge) decided to push it back with a pit prop about 5 feet long, so as to get it nearer to the rails. For this purpose it was necessary to fix the prop obliquely with one end resting against the draw bar of the vehicle, and the other end against the inside right hand buffer of the engine. Williams attended to the signalling operations and Greer held the prop, and when the engine came against it, it slipped, and before the engine driver could bring his engine to rest, Greer was caught between the draw bar hooks of the vehicle and engine, and so injured as to cause him to be off duty 10½ weeks.</p>	<p>chief responsibility for the mishap rests with charge shunter John Williams, in the service of the London and North Western Company (1) for not taking the engine round the two vehicles (which ultimately had to be done); (2) for not using the ramps provided to re-rail vehicles; (3) for bringing an improper prop on to the spot to be used for such a purpose; (4) for agreeing to Greer using the prop when he knew that he was inexperienced in railway work; and (5) for signalling the driver back while Greer was between the engine and vehicle.</p>	
LONDON, BRIGHTON AND SOUTH COAST.	<p>Date of Accident—3rd April, 1902. Place at which Accident happened—Brighton Goods Yard. Name of person killed—Henry Poste. Age of person killed—23. Capacity in which employed—Assistant Shunter. Number of booked working hours per diem—9. How long on duty at time of Accident—2½ hours. Description of Accident—Poste was one of three shunters who, on the date in question, were employed with the goods yard shunting engine. The head shunter, H. Bungay, detached the waggons from the engine, a second shunter named R. Tuffin attended to the hand points, and it was Poste's duty to break the waggons into position. From about 4.15 p.m. they were engaged in placing waggons for unloading in the coal siding.</p> <p>At about 4.30 p.m., as four waggons which had been detached from the engine were running into the siding, Poste, who had only been employed as a shunter for about six weeks, according to the too general practice at this station, attempted to place a sprag in one of the wheels, but unfortunately the sprag struck the wheel and rebounding, it fell immediately in front of him, and as he was then just in the act of picking up a second sprag, he stumbled over the first one, and falling to the ballast, his right leg got foul of the rail and was run over. He was at once removed to the hospital where he died the same night.</p>	<p>The coal siding north of a certain cartway is on a very slight gradient falling from the shunting neck, but from my own knowledge, after having made a test in the presence of the Company's officers who attended my inquiry, and as afterwards admitted by shunters Bungay and Tuffin, I am quite satisfied that there is no necessity for spragging waggons during shunting operations in this siding or goods yard.</p> <p>In this case the accident was due to misadventure brought about by the dangerous practice mentioned for which I am of opinion that the yard foreman Alfred Jenner, rather than the shunters, is to blame.</p>	<p>For future safety, owing to the path along which the men have to run being usually blocked at certain points with weighing machines and bags of coal owned by local traders, I strongly recommend that whenever waggons are taken to or placed in the coal siding in question, they should be kept attached to the engine until they are placed in the position required.</p> <p>A. F.</p>
MIDLAND ... ..	<p>Date of Accident—14th April, 1902. Place at which Accident happened—Barrow Hill and Staveley Works. Name of Person injured—Fred Peacock. Age of Person injured—21. Capacity in which employed—Pointholder. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—1½ hours. Nature of Injury—Left leg injured. Description of Accident—In this case Peacock had been engaged attending to the points at the south end of what is known as the Staveley south sidings, and after having completed his work there, it was necessary for him to go to the north or opposite end of the sidings to</p>	<p>The place was well lighted and the mishap was due to Peacock's own want of care. He frankly admitted that he was not looking where he was going.</p> <p>J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i> ....	<p>attend to the points, and while on his way there, he caught his left leg against a point handle and fell, so injuring his leg as to cause him to be off duty 1 week.</p> <p>Date of Accident—26th April, 1902. Place at which Accident happened—Toton Marshalling Sidings. Name of Person injured—George Glover. Age of Person injured—53. Capacity in which employed—Point Holder. Number of booked working hours per diem—10. How long on duty at time of Accident—9½ hours. Nature of Injury—Rib fractured.</p> <p>Description of Accident—At about 9.30 p.m. during the marshalling of a goods train for Sandiacre, as a waggon was running into the No. 14 siding, thinking it would not run clear of the crossing, Glover, who was standing close by, went to it for the purpose of trying to push it beyond the fouling point. At the same time the shunter (B. E. Chandler) noticed that the waggon was likely to stop foul, and not knowing or being able to see Glover's position, he signalled for the engine and waggons, from which Chandler had just detached the single waggon, to again close up to the latter and push it clear. Glover was pushing at the side of the single waggon, and, failing to notice what was being done, as the engine and waggons attached closed up sharply, the waggon was unexpectedly forced away from Glover, with the result that he fell on the brake lever guard iron and was injured as stated above.</p> <p>Date of Accident—10th May, 1902. Place at which Accident happened—Derby Loco. Yard. Name of Person injured—John Ratcliffe. Age of Person injured—32. Capacity in which employed—Extra Engine Driver, acting as fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—4 hours. Nature of Injury—Head and left shoulder bruised.</p> <p>Description of Accident—Ratcliffe was working with pilot engine No. 1283, which at about 8 p.m. was taken to the Loco. Yard for coaling purposes. The engine was first brought to a stand a few yards north of the coaling stage and before it was again moved a second engine, No. 1570, was brought to the rear by engine driver J. E. Elsey and fireman H. Mills. Shortly afterwards, the first engine was taken ahead to the stage, but whilst Ratcliffe was standing on the top of the tender prepared to break the coal as it was "tipped," the second engine was brought up in the rear and was allowed to collide with the standing engine with such force that, although the brakes are said to have been "hard on," the latter was moved forward about six feet and, by the impact, Ratcliffe was thrown backwards on to the footplate.</p> <p>Date of Accident—16th May, 1902. Place at which Accident happened—Derby. Name of Person injured</p>	<p>The shunting neck is well lighted and, with ordinary care, I certainly think Glover might have seen the movements of the shunting engine; consequently, although there is no doubt his intentions were to facilitate the work, I am of opinion that the primary cause of the mishap was his own want of caution.</p> <p>A. F.</p> <p>It appears that after seeing the first engine had been moved ahead, the driver, J. K. Elsey, of the second, who was then engaged in refilling his oil feeder, requested his fireman, H. Mills, to move their engine forward.</p> <p>The excuse given by Mills for allowing his engine to collide with the one in front is that although he could clearly see its position he misjudged the distance.</p> <p>Mills fully admits that he is to blame, but at the same time I am strongly of opinion that driver Elsey is chiefly to blame because having requested Mills to move the engine, for which there was no necessity, he, as the responsible person, knowing the condition of things ahead should certainly have kept a close watch over the movements.</p> <p>A. F.</p> <p>In this case there can be no doubt that had the driver (Walter Varney) of the</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<b>MIDLAND—cont.</b>	<p>—Thomas Draycott. Age of Person injured—57. Capacity in which employed—Engine Driver. Number of booked working hours per diem—10½. How long on duty at time of Accident—6¼ hours. Nature of Injury—Face and left shoulder bruised.</p> <p>Description of Accident—Draycott had worked a passenger train from Sheffield to Derby, at which station it was necessary that he should take his engine (No. 45) to the loco. sheds. When returning from the sheds to the station, ready to work the return 1.45 p.m. train, and whilst passing over the "loco. line," i.e., a short line between the "loco." yard and passenger station, he necessarily brought his engine to a stand at the rear of an empty carriage train which was then standing at the No. 2 cabin home signal.</p> <p>After the engine had been standing about three minutes, another engine, No. 2182, with a brake van attached, which had followed along the same line, was allowed to collide with such force as to lift the rear end of the tender, with the result that Draycott, who was just then in the act of leaving the footplate for the purpose of oiling the slide bars, was crushed between the handrail pillars and thrown down.</p> <p>Date of Accident—18th May, 1902. Place at which Accident happened—Apperley Bridge Junction. Name of Person injured—John Hibbert. Age of Person injured—49. Capacity in which employed—Engine driver. Number of booked working hours per diem—10. How long on duty at time of Accident—1 hour 50 minutes. Nature of Injury—Right hip bruised.</p> <p>Description of Accident—On the date in question Hibbert, with Engine No. 598, was working with the 2 p.m. down goods train from Leeds to Carnforth, and when approaching Apperley Junction, at 2.50 p.m., while his engine was running at about 20 miles an hour, he left the footplate and stood upon the lower right-hand tender-step for the purpose of opening a tap fixed under the step in question, which is provided to regulate the waste water from the injector. While so engaged, his right hip came in contact with the rim fixed round the spectacle glass of a disc signal which is fixed in the six-foot way between the down and up slow lines, with the result that his right hip was so injured that he was still off duty when the inquiry was held.</p>	<p>rear engine (No. 2182) been keeping a proper look out, he might have seen the position of the standing engine and prevented the accident.</p> <p>The line is on a slight curve favourable for his view, and, in having neglected to keep a proper look out, I consider he is alone to blame for the mishap.</p> <p style="text-align: right;">A. F.</p> <p>At the spot where this mishap happened the space between the up and down slow main lines is six feet three inches. The disc signal is fixed in the centre between the lines, but as the rim with which Hibbert came in contact is 13 inches in diameter, there is only a space of 30 inches at each side between the outside of the rim and the outer rails of the running lines.</p> <p>In this case Hibbert states that he tried both injectors before leaving Leeds and they worked satisfactorily, but when he tried the right-hand one on approaching Apperley Junction it would not work owing to the handle connected to the tap having moved while running, which caused the tap to be either closed or partly closed, and further, that this has often occurred with different engines he has worked with, and in some cases he has reported the defect. However, he admitted that in this instance the left-hand injector was working properly and by using it he could have kept sufficient water in the boiler to reach Skipton (the next stopping station) in safety, and also that he disregarded rules 24 (a) and 139, consequently he is alone to blame for the accident.</p>	<p>This Company's engines are all fitted with taps on both sides, which are all fixed under the lower tender-step, but some of them can be opened and shut by a lever fixed on the footplate, and, for future safety, it is desirable that they should all be so fitted, so that there would be no necessity for the men to leave the footplates of their engines in motion to attend to these taps.</p> <p>I am afraid that the dangerous practice of enginemmen leaving the footplates of their engines in motion for various purposes is far too general on this line, and the Company might, with advantage, issue strict instructions forbidding it.</p> <p style="text-align: right;">J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND AND GLASGOW AND SOUTH WESTERN JOINT.	<p>Date of Accident—29th May, 1902. Place at which Accident happened—Dentonholme, Carlisle. Name of Person killed—Joseph Kirkbride. Age of Person killed—18. Capacity in which employed—Number taker. Number of booked working hours per diem—18. How long on duty at time of Accident—12 hours 40 minutes.</p> <p>Description of Accident—The deceased was employed as a number taker by the Railway Clearing house and had been stationed at Dentonholme for one month. At about 5.40 a.m. on the date in question, after having taken the numbers of a Midland Company's goods train while it stood on the down main line, he crossed over the sidings on the way to his office which is situated at the west side of the sidings, and when attempting to pass between two waggons at rest, which were not more than three feet apart, and which stood in No. 1 siding (nearest to the office) another vehicle was shunted into the siding against the most northern vehicle at rest, causing it to be moved forward against the other standing vehicle, and as the buffers joined, the deceased's head was crushed between them causing instantaneous death.</p>	<p>The mishap appears to have been due to want of care on the part of the deceased, as by going a few yards further northwards he could have crossed No. 1 siding clear of any standing vehicles, but as his eye-sight was defective (especially when on night duty as in this case), he might not have been able to see this or the waggons approaching which struck that vehicle.</p>	<p>For future safety the Railway Clearing House might with advantage, at stated periods, test the eyesight of their number takers. I may say that Mr. Mottram, the Clearing House Inspector, had never seen the deceased wearing glasses, nor was he aware that he did so until two days prior to the accident, as he did not use them regularly.</p> <p>J. 'I. H.</p>
NORTH BRITISH ...	<p>Date of Accident—23rd April, 1902. Place at which Accident happened—Waverley Station, Edinburgh. Name of Person injured—Sinclair Thomson. Age of Person injured—26. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—2 hours. Nature of Injury—Cut over left eye, right knee twisted and back bruised.</p> <p>Description of Accident—At about 11 a.m. Thomson was engaged marshalling carriages which were to form the 12.55 p.m. passenger train from Edinburgh to Hawick. Six of the carriages were standing at the rear of a luggage van and a carriage truck on the up loop line. After these eight vehicles had been drawn over the main line points, they were propelled towards the up main line platform, but as that was being done, with a view of saving time, and in accordance with the usual practice at that station, Thomson got on the buffers between the carriage truck and the next leading vehicle, intending to uncouple and to allow the six vehicles to run unattached from the engine to the platform, but whilst he was in the act of uncoupling, his right foot slipped from the buffer casting on which he was standing, and he fell between the moving vehicles to the ballast.</p> <p>Date of Accident—28th April, 1902. Place at which Accident happened—Camlachie. Name of Person killed—James Cameron. Age of Person killed—62. Capacity in which employed—Foreman goods porter. Number of booked working hours per diem—13, with 2 hours off for meals. How long on duty at time of Accident—10 hours.</p>	<p>From the evidence it appears to be the general practice at this station when marshalling passenger stock, for the carriages to be uncoupled whilst in motion. As these carriages are necessarily fitted with screw couplings it is impossible for a coupling stick to be used, consequently the only way the uncoupling can be carried out is for the shunters to stand on the buffers as Thomson was doing in this case.</p> <p>To my mind the practice that led to this accident, which, except for the prompt action of the engine-driver, O. Holmes, must have been far more serious, is most dangerous, and is certainly contrary to Rule 24a; but as Thomson who has only been employed as a shunter since November last, was acting as he had been trained, and with the approval of his superior officer, I do not think it would be fair to hold him responsible.</p> <p>The mishap seems to have been chiefly due to the deceased's excess of zeal. He appears to have thought that the case could be placed in the waggon before the engine returned to move it.</p> <p>J. J. H.</p>	<p>I recommend that for future safety stringent instructions should be issued against the practice of detaching screw coupled vehicles in motion.</p> <p>A. F.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendation.
<b>NORTH BRITISH—<i>cont.</i></b>	<p>Description of Accident—The deceased was in charge of the loading bank, and a few minutes before the accident happened he informed yardsman Alexander Matthews that the vehicles standing in the loading bank siding were ready to be drawn out. For this purpose the shunting engine was taken into the siding and coupled to four vehicles standing at the entrance to the siding, and these vehicles were placed in another siding, after which the engine was again taken into the loading bank siding and attached to the remainder of the vehicles standing there. The deceased had in the meantime instructed a carman to back his lorry containing a heavy case against a waggon standing in the loading bank siding, and while he and goods porters R. Scott and G. Riddick were engaged removing the case from the lorry to a waggon, the latter was moved with the result that the deceased was thrown off the vehicle on to the rail, and run over and killed.</p> <p>Date of Accident—8th May, 1902. Place at which Accident happened—Pinkston (Glasgow). Name of Person injured—William Hunter. Age of Person injured—23. Capacity in which employed—Shunter. Number of booked working hours per diem—12 (less two hours off for meals). How long on duty at time of Accident—3½ hours. Nature of Injury—Collar bone fractured.</p> <p>Description of Accident—At about 1.30 a.m. during shunting operations sixteen waggons were drawn up the No. 3 siding. The last waggon was required in a different siding to the others, and consequently they were all brought to a stand. When entering the shunting neck and the last one there detached, Hunter noticed that the one he had uncoupled was standing too near the crossing, and he at once began to push at the buffer, thinking he could thus get it back clear of the fouling point, but just as he was in the act of doing so, owing to the shunting neck being on a slight gradient falling towards the sidings, the waggons attached to the engine ran back, and in closing up to that at which Hunter was pushing, he was crushed and injured as stated.</p> <p>Date of Accident—19th May, 1902. Place at which Accident happened—Tayport. Name of Person injured—James Cowie. Age of Person injured—45. Capacity in which employed—Yard Pointsman. Number of booked working hours per diem—12. How long on duty at time of Accident—2½ hours. Nature of injury—Left hip injured.</p> <p>Description of Accident—In this case, during shunting operations at Tayport at about 9.20 a.m., the engine was taken into the centre road of the harbour sidings and attached to 17 waggons, after which, Cowie, who had assisted to couple the vehicles together, signalled the driver ahead. After doing so, he</p>	<p>In this case, although in that part of the yard there is no fixed light by which Hunter could see the exact position of the rear waggon, I am of opinion that he acted very unwisely in placing himself in the position mentioned, and that the mishap was due to his own want of caution.</p> <p>The mishap was due to Cowie's own want of care.</p> <p>J. J. H.</p>	<p>For the safety of men working in the Pinkston sidings I recommend that the Company should seriously consider the advisability of providing some good fixed lamps near to the shunting neck and fouling points.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>removed the label of the sixteenth vehicle to examine it. While in the act of replacing the label in the catch provided, he had his coupling pole under his right arm, with the result that when the waggon was drawn forward, his coupling pole came in contact with one of the wheels of the waggon he was placing the label upon and rebounding, struck his left hip, causing him to be thrown to the ground, and so injured as to cause him to be off duty 5 days.</p> <p>Date of Accident—30th May, 1902. Place at which Accident happened—Haddington. Name of Person injured—James Innes. Age of Person injured—42. Capacity in which employed—Goods Guard. Number of booked working hours per diem—11½. How long on duty at time of Accident—2½ hours. Nature of Injury—Third finger of right hand injured.</p> <p>Description of Accident—On the day in question, the engine that Innes was working with was taken into what is known as the "back lye" to draw out the waggons standing there for shunting purposes, but it was first necessary for the vehicles to be pushed back to enable Innes to take out the sprags in the wheels of the leading and fourth vehicles respectively. He removed the former, and while in the act of removing the latter, chiefly owing to it being such a large one, he was unable to get it out, with the result that his finger was crushed between the sprag and the ground, and so injured as to cause him to be off duty 15 days.</p> <p>Date of Accident—30th June, 1902. Place at which Accident happened—Burntisland. Name of Person killed—Joseph Henderson. Age of Person killed 18.</p> <p>Description of Accident—The docks at Burntisland are owned by the North British Railway Company, but, as is usual in such cases, the shipping of coal is done by a local contractor, who in this case was named Alexander John Adamson. The sidings leading to and from the hoists are arranged on suitable gradients to allow of the waggons running by their own momentum, and of course the waggons are lifted from the low level for 'tipping' by a hoist. In addition to the men who are employed at the top of the hoist, three men are engaged at the bottom, and it is their duty to 'feed' and raise the hoist. On the morning in question, the men (including Henderson) were all engaged in coaling the S.S. "Ellen," when, at about 8.15, after emptying all the waggons placed in the siding, it was found that two other waggon loads were necessary, and accordingly they were shunted into the 'feed' siding, and under the control of the three ground men, J. Henderson, W. Miller and W. Williamson, they were allowed to run towards the hoist. As they approached the hoist, Henderson, unknown to his mates, and contrary to the usual practice, went between the waggons to uncouple, but whilst doing</p>	<p>The "back lye" siding falls slightly towards the main line, consequently the vehicles will not stand unless the brakes are either pinned down or sprags placed in the wheels.</p> <p>From the evidence given, when the men are dealing with this Company's waggons, owing to all of them being only fitted with a single brake block, they use sprags, but in dealing with the North Eastern Company's waggons which are fitted with at least two brake blocks, sprags are not necessary.</p> <p>The mishap appears to have been chiefly due to the sprag Innes was in the act of removing from between the spokes of the waggon wheel, being such a large one.</p> <p>The evidence showed that it is very unusual for the 'tippers' to get between waggons for uncoupling. Shunting poles are provided for that purpose, but on this occasion, as if thinking it might facilitate the work, even before the waggons had been 'lowered' to the position where they are usually uncoupled, Henderson got between them with the result stated.</p> <p>There was no necessity for him to have got between the waggons contrary to the ordinary practice and therefore, whatever may have been his intentions, I am of opinion that, as I understand he afterwards admitted, Henderson was alone to blame for the accident.</p> <p>A. F.</p>	<p>The practice of using sprags on this Company's line is far too general, and the number of accidents which have occurred from this cause, proves it to be a dangerous operation. With a view to prevent other accidents of a similar nature, steps should be taken to have all vehicles fitted with more effective brakes, so that there would be no necessity for spragging, and in the meantime, such large unwieldy sprags should not be supplied for the use of the staff.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>so, he tripped over the end of some sleepers, which are there fixed between the rails to form a cartway over the siding, and falling with his legs across the rail, they were run over by the leading wheels of the rear waggon and were so injured that he died the same morning.</p> <p>Date of Accident—30th June, 1902. Place at which Accident happened—Ayton. Name of Person injured—Alexander Spears. Age of Person injured—33. Capacity in which employed—Goods Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—9 hours. Nature of Injury—Two fingers of right hand injured.</p> <p>Description of Accident—The goods yard at Ayton is only connected with the down main line. It was necessary to detach one waggon into one of the sidings from an up special goods train from Duns to Berwick. The waggon was separated from the engine by six other waggons. The train was shunted across on to the down main line to allow an express goods train to pass, after which Spears uncoupled the Ayton waggon near the points leading to the yard, and then attached one end of the wire tow rope to the hook fixed near the front end of that vehicle, and porter A. Sherlaw, attached the other end to the draw-bar hook of the rear waggon of those attached to the engine. Spears then signalled the driver ahead to draw the Ayton waggon into the yard, and held the tow rope to prevent the link at the trailing end of it falling out of the hook, and while doing so, when the rope became taut, his fingers were crushed between it and the end beam of the waggon, and so injured as to cause him to be off duty six weeks.</p>	<p>The mishap was due to misadventure. As there is only one cross-over road at this station and the sidings are all at the south west side of the down main line, it is necessary when detaching vehicles from up trains for them to be either fly-shunted or tow-roped into the yard, and the vehicles to be taken forward by these trains have either to be tow-roped or propped past the engine.</p>	<p>The operations of tow roping, propping, and fly-shunting, are very frequently performed at this station. All these operations are attended with such a great risk to the men employed therein, that I consider the Company should take steps, by the provision of an additional cross-over, or other means, to remove the necessity for their adoption.</p> <p>J. J. H.</p>
NORTH EASTERN ...	<p>Date of Accident—10th April, 1902. Place at which Accident happened—Shildon Marshalling Sidings. Name of Person killed—Joseph Dawson. Age of Person killed—59. Capacity in which employed—Ganger of Platelayers. Number of booked working hours per diem—11. How long on duty at time of Accident—6 hours.</p> <p>Description of Accident—Dawson was in charge of a length of line immediately east of Shildon, but on the date in question, as on many previous occasions, he and his men were engaged in assisting other men to clear away refuse from the Shildon marshalling sidings.</p> <p>At 11.45 a.m., the men were loading the refuse into a waggon which was standing at the east end of the No. 1 siding, and about that time Dawson went to the shunting neck at the west end for the purpose of arranging with the shunters for another waggon to be placed in position for loading, and in returning from the shunting neck, and when about 300 yards from the shunting neck, whilst walking across the No. 2 siding, he was knocked down by the first of three waggons which</p>	<p>From the evidence of a mineral guard named T. Lawson, who was in the brake-van of a mineral train, then standing on the independent line which is parallel with the No. 1 siding, it appears that when returning from the shunting neck Dawson walked in the space between the No. 3 and No. 4 sidings until reaching the rear of certain waggons standing in the No. 3. At that point he crossed in front of the standing waggons and, apparently without looking to see if any other waggons were being run into No. 2 siding, he attempted to cross the latter with the result stated.</p> <p>Lawson, noticing his danger, called to Dawson to get clear, but before he could then do so he was knocked down.</p> <p>Shunter W. Wilkinson was riding on the buffers between the first and second</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>had been shunted into the siding and was run over, receiving injuries from which he died two days afterwards.</p> <p>Date of Accident—16th April, 1902. Place at which accident happened—Armley Exchange sidings. Name of Person injured—Charles Watts. Age of Person injured—41. Capacity in which employed—Goods guard. Number of booked working hours per diem—12. How long on duty at time of Accident—7 hours. Nature of Injury—Left foot bruised.</p> <p>Description of Accident—On the date in question and for six weeks previously Watts, who is in the Midland Company's service, had been assisting in the general working of the traffic at that Company's Armley Bridge marshalling sidings. At about 12.50 a.m. he accompanied 15 waggons which were propelled from the Midland Company's Armley Bridge sidings to the North Eastern Company's Exchange sidings, close by, and after having placed the waggons in the No. 2 sidings, whilst walking in the six-foot space between the No. 2 and No. 1 sidings his left foot caught under the crank of a hand point rod which caused him to fall to the ballast, with the result stated above.</p> <p>Date of Accident—8th May, 1902. Place at which Accident happened—Monkwearmouth Turntable Yard Sidings. Name of Person injured—Henry P. Ord. Age of Person injured—25. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—7½ hours. Nature of Injury—Left ankle dislocated.</p> <p>Description of Accident—Ord was assisting in the formation of an outgoing goods train in what is locally known as the Turntable Yard sidings, and at about 5.15 a.m., whilst walking along the adjacent goods lines from the north end of the sidings to the shunting neck, his left foot slipped off one of the partly exposed sleepers, with the result stated.</p> <p>Date of Accident—16th May, 1902. Place at which Accident happened—Croft Junction, near Darlington. Name of Person injured—Edward Barker. Age of Person injured—25. Capacity in which employed—Plumber. Number of booked working hours per diem—11. How long on duty at time of Accident—1½ hours. Nature of Injury—Internal.</p> <p>Description of Accident—Barker and five other men were instructed to go to Croft Junction for the purpose of finishing certain work in connection with the new signal cabin.</p>	<p>waggons for breaking purposes, but owing to the waggons in the adjoining No. 3 siding it was impossible for him to see Dawson.</p> <p>I am of opinion that in this case the mishap was due to want of caution on the part of deceased.</p> <p>A. F.</p> <p>The hand point rod referred to is connected to some points in a cross-over road which, for running round purposes, leads from the No. 2 to the No. 1 siding and the lever is necessarily placed between those two sidings.</p> <p>The crank and rod stand about four inches above the path, and so form an unnecessary obstruction which, owing to it being dark at the time, Watts was not able to see.</p> <p>Except where the mishap occurred, the sleepers in the Turntable Yard sidings and the parallel goods lines are fairly covered, but at that point, owing to there being a large number of engines brought to a stand there, the waste water running from the injector pipes has forced the ballast from off and around the sleepers, and at the time of my Inquiry many of them were exposed about half their depth, which in this case was the primary cause of the accident.</p> <p>The Company's representatives who attended my Inquiry agreed to have the ends of the sleepers covered at once, consequently no further action seems necessary.</p> <p>A. F.</p> <p>In riding on the footstep as stated, Barker and the other men acted contrary to the Company's rules, and I am therefore of opinion that in this case the accident was due to Barker's own misconduct.</p> <p>A. F.</p>	<p>For future safety I recommend that the lever-box and crank in question, as well as others similarly fixed in the same sidings, should be lowered, and that the crank and point rod should be protected with side timbers, as is done in other yards on the North Eastern Company's system, besides which, and especially as it would be impossible to fix a lamp near to the spot, the point lever and lever-box or frame should be painted and kept white.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>On reaching Darlington Station, three of the men, including Barker, were detained for a few minutes for private reasons, and then when they left for Croft Junction, which is situated about three-quarters of a mile southwards, they, unknown to the Guard, got on the footstep of a brake van at the rear of a goods train, then leaving the goods yard, with a view of getting a ride to the Junction where they expected the train would stop. Finding the train was not stopping they jumped from the step, and in doing so Barker stumbled and fell, receiving injuries as stated above.</p> <p>Date of Accident—21st May, 1902. Place at which Accident happened—Trafalgar, Newcastle. Name of Person injured—Andrew Mair. Age of Person injured—54. Capacity in which employed—Foreman. Number of booked working hours per diem—12. How long on duty at time of Accident—7 hours 50 minutes. Nature of Injury—Chest and left shoulder injured.</p> <p>Description of Accident—In this case Mair placed 13 waggons in the van siding at the west end, leaving the leading one standing well clear of the shunting neck (the adjoining line). Sometime afterwards shunter Thomas Pallister fly-shunted another waggon into the van siding at the east or opposite end, causing the 13 waggons to be moved westwards. At about 1.50 a.m. the engine arrived which had to take these waggons away, and Mair, knowing that he had left the vehicles referred to well clear of the shunting neck, rode upon the step of the engine at the side nearest to the shunting neck while it was travelling from the east to the west end of that line. When the engine reached the fouling point of the van siding, engine-driver George Logan saw by the light from the head lamp of his engine that the leading vehicle standing in the van siding was not sufficiently clear to admit of Mair's body passing, and he called out to him, "look-out," but before Mair had time to jump off the step of the engine he was caught between it and the waggon standing foul, and so injured that he was off duty two weeks.</p> <p>Date of Accident—7th June, 1902. Place at which Accident happened—Heaton Junction. Name of Person injured—George Atkinson. Age of Person injured—26. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—5½ hours. Nature of Injury—Right hand crushed.</p> <p>Description of Accident—At 7.30 p.m. on the day in question, while a train of 35 vehicles was being set back into what is known as the "old independent line" siding, shunter George Scorer uncoupled the engine. When the train came in contact with two vehicles at rest against the buffer stops it rebounded, and with the intention</p>	<p>The van siding has connections at both ends and runs parallel with the shunting neck. The mishap, which might have been far more serious, was chiefly due to shunter Thomas Pallister, who fly-shunted a waggon into the van siding at the east end; and, although he knew that it came in contact with those standing there, causing them to be moved, yet neglected to walk forward to see how far the vehicles had been moved, and whether they were or where not still clear at the west end, in accordance with Rule 184 (c).</p> <p>To add to Mair's danger the place was in darkness.</p> <p>I may point out that on July 26th, 1900, fireman H. Petty, while walking round the outside framing of his engine, was knocked off at the same spot, owing to the leading waggon in the van siding having been left standing too near the fouling point.</p> <p>The evidence is conflicting: fireman R. Fraser saying that after shunter Scorer uncoupled the engine he gave him a "right-away" signal, which he transmitted to his driver, Thomas Hurst. Scorer denies this, but whether he did or did not give the "right-away" signal he is to blame for uncoupling the engine before satisfying himself that the "old independent line" siding would hold the train, to admit of the shunting engine coming out, as afterwards two or three of the leading vehicles had to be placed in</p>	<p>For future safety scotch blocks should be fixed at suitable places at both ends of the van siding, and instructions issued that in all cases the vehicles must be placed within the scotch blocks, and the latter placed across the rails after the shunting operations are completed. In addition the two lamps fixed on the grain dock, and which, if alight, might have shown sufficient light on the spot where the accident happened to have prevented it, should be kept burning brightly. I was informed that it was intended that this should be done, but it was clear from the evidence that this is not carried out.</p> <p>Further, from the evidence given, waggons are daily fly-shunted into the van siding at the east end. This mode of shunting is not provided for in the Company's rules and regulations, and there does not appear to be any real necessity for it, and as it is such a dangerous method of shunting it should be forbidden.</p> <p>J. J. H.</p> <p>Although Atkinson acted with bad judgment in attempting to use the sprag when no object could be gained by doing so, it is evident that the practice of spragging vehicles in motion, for which there does not appear to be any necessity, is far too general at this place, and orders could, I think, with advantage, be issued forbidding the practice.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>of preventing the leading vehicle running back foul of the adjoining sidings, in one of which the shunting engine stood, Atkinson seized a sprag lying on the ground and attempted to place it in the leading wheel of the leading vehicle, when his right hand was caught between the sprag and the brake guard of the vehicle, and so injured as to cause him to be off duty four days.</p> <p>Date of Accident.—17th June, 1902. Place at which Accident happened—Shildon. Name of Person injured—William Cross. Age of Person injured—26. Capacity in which employed—Shunter. Number of booked working hours per diem—8. How long on duty at time of Accident—6½ hours. Nature of Injury—Left eye and right leg slightly injured.</p> <p>Description of Accident.—The shunting at Shildon is all done by gravitation. The large majority of the waggons dealt with are fitted with end brakes and end steps by which the shunters climb on to and step from the buffers upon which they ride. In this case Cross was taking two waggons from No. 3 reception sidings to the Newport siding, and while doing so he, as usual, rode upon the left-hand buffer of the near waggon until reaching the shunting neck between the sidings in question, where another waggon was standing which was also for the Newport siding. After bringing the two vehicles to rest so that they could be coupled to the standing vehicle he jumped off the step of the vehicle he had been riding upon on to the ground, and before he had time to look round he was struck and knocked down by a waggon which was running from one of the reception sidings to the "truck road" (adjoining the shunting neck) with the result stated above.</p> <p>Date of Accident—20th June, 1902. Place at which Accident happened—Geldard Junction, Leeds. Name of Person killed—Joseph Cundill. Age of Person killed—46. Capacity in which employed—Goods guard. Number of booked working hours per diem—10. How long on duty at time of Accident—7½ hours.</p> <p>Description of Accident.—On the date in question Cundill was working with local goods trains between Copley Hill and Geldard Junction, Leeds. During shunting operations at the latter place he uncoupled one waggon which was shunted into the "weigh siding." After this the five waggons still attached to the engines were drawn out of that siding, and when the rear vehicle was over the points leading to No. 2 siding (adjoining) he signalled his driver back to bring the vehicles against some others to which they had to be attached. For coupling purposes Cundill intended to ride back with the vehicles for about 40 yards, and while they were in motion he placed one end of his coupling stick on to the top of the leading axle-box and underneath the axle-guard of the leading waggon, and while attempting to ride upon the</p>	<p>another siding before the shunting engine could get out.</p> <p>There was only a space of 5 feet between the lines at the spot where the mishap happened, this being the general clearance between the shunting necks and lines of the sidings in the extensive marshalling yards at this place, and although the mishap appears to have been chiefly due to misadventure it might have been avoided if the space between the lines had been greater.</p> <p>The following extract is taken from page 32 of the General Orders Book issued in 1893, a copy of which the deceased was in possession of:—</p> <p>"RIDING ON COUPLING-STICKS.</p> <p>"Guards and shunters are prohibited from indulging in the dangerous practice of riding on coupling-sticks placed on any part of waggons in motion. Any infringement of this regulation will be severely dealt with."</p> <p>No person is to blame for the mishap but the deceased himself, and it is to be regretted that he disregarded the Order quoted, especially when so little was to be gained by doing so.</p> <p>This order has been repeated from time to time, but it is clear from the evidence given that the men, not only at Leeds but also at other stations on this line, have been, and were still, up to the time of my inquiry, in the</p>	<p>For future safety the Company might with advantage consider the advisability of giving a greater clearance between the lines at this very busy place. This is very desirable as the waggons now being built are fitted with brake levers on the side, to manipulate which it is necessary for the men to walk or run between the lines, and while so engaged, when waggons are standing or running on the adjoining lines, a space of 5 feet is not sufficient for them to perform their work in, with safety.</p> <p>J. J. H.</p> <p>It is to be hoped that the Company will take steps, without further delay, to strictly enforce their own order with a view to putting a stop to such a very dangerous practice.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>coupling stick he slipped and fell to the ground, first with his left hand on the rail under the leading wheel, after which he rolled over with his right hand on the rail under the trailing wheel, with the result that he received such injuries that he died on June 25th.</p>	<p>habit of riding upon their coupling sticks as in this case.</p>	
	<p>Date of Accident—23rd June, 1902. Place at which Accident happened—North Shields Tunnel. Name of Person injured—Robert Mavin. Age of Person injured—28. Capacity in which employed—Stonemason. Number of booked working hours per diem—11. How long on duty at time of Accident—3 hours 10 minutes. Nature of Injury—Part of left foot run over, necessitating the amputation of fourth and fifth toes.</p> <p>Description of Accident—The North Shields Tunnel is about half a mile in length. When the tunnel was made a sewer culvert was placed along the centre, <i>i.e.</i>, under the 6-foot space. It was found necessary to provide a new culvert (in the place of the former) under the down main line, and the work was commenced in February last, from which time until the new culvert was finished on July 27th all traffic was worked over the up main line.</p> <p>Mavin was engaged on the new work, and on the date in question, when crossing the running line for the purpose of getting a tool from a barrel which was stored in one of the manholes, he failed to notice an up train approaching, with the result that he was knocked down and his left foot was run over.</p>	<p>The tunnel was well lighted, and for the safety of the workmen, in addition to the engine drivers being requested to repeatedly sound their engine whistles, two look-out men—one at each end of the working party, or about two chains' length apart—were appointed.</p> <p>To get to the manhole referred to Mavin had to pass between the look-out men, both of whom, on hearing the train approaching, are said to have given the usual warning signal. I am therefore of opinion that in this case the mishap was due to Mavin's own want of caution.</p> <p style="text-align: right;">A. F.</p>	
	<p>Date of Accident—29th June, 1902. Place at which Accident happened—Hedon. Name of Person injured—Arthur Wood. Age of Person injured—24. Capacity in which employed—Fireman. Number of booked working hours per diem—11½. How long on duty at time of Accident—7½ hours. Nature of Injury—Mouth injured, teeth broken.</p> <p>Description of Accident—Hedon is a staff station, and is situated on the Hull and Withernsea branch single line, which is worked under the Regulations for Train Staff and Ticket.</p> <p>On the date in question certain extra carriages were worked on the 2.30 p.m. passenger train from Hull to Withernsea. This necessitated the engine and three of the vehicles to be run beyond the platform at each intermediate station. On reaching Headon, as the engine passed the platform, the station master, J. Mowforth, who is responsible for the staff working, received the staff from the fireman, and according to the usual practice at that station the booking clerk, H. F. Dean, attempted to give the one for the next section, but in doing so, and just as the fireman, A. Wood, was about to take it, Dean raised the staff, with the result that it struck Wood in the mouth.</p>	<p>Wood has been a fireman for six years and is well acquainted with the practice of giving and receiving a train staff. The youth, H. J. Dean, has frequently handed the staff and tickets to enginemen, and I have no reason to suppose that he acted in anyway carelessly on the occasion in question, but from the evidence given I am inclined to think that when trying to place the staff in position for the fireman to take, instead of easing it in the direction the train was running, he suddenly lifted it. I am therefore of opinion that in this case the accident was due to misadventure.</p>	<p>The Company's Regulations state that none but properly authorised persons shall receive or deliver the train staff. This rule, and also the one referring to the position in which the train staffs are to be kept when not in use, is from my own observation much disregarded at Hedon, to which for future safety the Company's attention should be directed.</p> <p style="text-align: right;">A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH STAFFORDSHIRE.	<p>Date of Accident—10th April 1902. Place at which Accident happened—Stoke Goods Yard. Name of Person injured—Lewis Swetenham. Age of Person injured—22. Capacity in which employed—Goods porter. Number of booked working hours per diem—11. How long on duty at time of Accident—10 hours. Nature of Injury—Hips crushed.</p> <p>Description of Accident—At about 5 p.m. Swetenham left the goods shed for the purpose of untying the sheet strings from certain waggons before the latter were placed in the goods shed. The waggons were standing in the No. 8 siding, and to get to them it was necessary he should cross the No. 9 siding. At that time several waggons were being towed by capstan from the goods shed to the No. 9 siding, but after they had reached a point about two feet from others standing in the same siding they were necessarily brought to a stand to enable the "hooker on" to remove the rope from the "leading" to a rear waggon. During the momentary standing of the wagons Swetenham attempted to pass between the buffers of the two sets of waggons, but, owing to another capstanman being engaged at a dummy situated between the No. 8 and No. 9 sidings and just opposite the space through which Swetenham was passing, instead of making an effort to get clear he stepped backwards and stood close to the buffers, and when the waggons in tow were then set in motion he was slightly crushed between the buffers.</p>	<p>In this case, as he fully admits, Swetenham acted very unwisely. In the first place he did wrong in passing between the buffers without first ascertaining if it was safe to do so, and after doing so he certainly might have made an effort to get clear. I am therefore of opinion that in this case the mishap, which might have proved far more serious, was due to the injured man's own want of caution.</p> <p>A. F.</p>	
	<p>Date of Accident—14th April 1902. Place at which Accident happened—Colwich. Name of Person injured—Richard Hall. Age of Person injured—46. Capacity in which employed—Waggon Examiner (in employ of London and North Western Railway Company). Number of booked working hours per diem—10½. How long on duty at time of Accident—3½ hours. Nature of Injury—Left knee sprained.</p> <p>Description of Accident—On the night in question, when Hall was walking alongside the 9.10 p.m. up goods train from Stoke to Camden, while it was standing on the North Staffordshire line a short distance north of Colwich station, he caught his foot under an exposed point rod and fell, so injuring his left knee as to cause him to be still off duty at the time the Inquiry was held.</p>	<p>The mishap was chiefly due to the point rod over which Hall fell being so badly exposed across the path it was necessary for him to take while examining the train in question. Since this mishap the point rod referred to, and the others which cross the path and which were similarly exposed, have been protected with side timbers, and the ballast brought up to a level with the top of the timbers.</p> <p>J. J. H.</p>	
	<p>Date of Accident—6th June, 1902. Place at which Accident happened—Longport. Name of Person injured—Samuel Everall. Age of Person injured—62. Capacity in which employed—Brakesman. Number of booked working hours per diem—10. How long on duty at time of Accident—5 hours. Nature of Injury—Left ankle sprained.</p> <p>Description of Accident—Everall, who is in the service of the London and North Western Company, was working with the 6.50 p.m. up goods</p>	<p>During shunting operations it was necessary for Everall to be in the 6-foot way between the main lines, owing to the station platform being situated at the opposite side. The mishap was due to the chain working the disc signal being so badly exposed in the path it was necessary for Everall to take. Since, and in consequence of this accident, the chain has been covered</p>	<p>The shunting operations are heavy at this place during the night, and for the future safety of the men conducting them, the ballast should in both the cases mentioned be brought up to a level with the top of the boxing.</p> <p>J. J. H.</p>



## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
SOUTH-EASTERN AND CHATHAM—cont.	bridge, about a quarter of a mile south of the station. Booker was then working on the No 3 up line (facing approaching trains) and the five others, nearly all abreast, were spread over the 6-foot way and the No. 4 down line. At that time trains were seen approaching on both lines, the up train was about 100 yards and the down about 300 yards distant. The ganger at once called "get clear," and all except Booker moved to the off or east side of the No. 4 line, but he went to the west or off side of No. 3 and placed his foot on some parallel point rods intending to pass over them, but, unfortunately, his foot slipped off the front rod which caused him to lose his balance, and before he could regain his position he was struck by the passing train.	this section of line every minute. Each witness examined, including the ganger, Wm. Miles, state that when ever working on that part of the line they consider a look-out man is necessary, but from the evidence of the ganger who, since the mishap, but for other reasons, has been removed from the length, he does not seem to understand that he was responsible for appointing one, and he has never done so.	
TAFF VALE ...	<p>Date of Accident—7th June 1903. Place at which Accident happened—Merthyr. Names of Persons injured—(1) Henry Burgess, and (2) Wm. Miller. Ages of persons injured—(1) 34, (2) 28. Capacity in which employed—Goods porters. Number of booked working hours per diem—12. How long on duty at time of Accident—10½ hours. Nature of Injury—(1) Cut over left eye, (2) Left ankle sprained.</p> <p>Description of Accident—At about 4 p.m. Burgess and Miller, after having finished unloading the last of nine waggons standing in the goods shed lifted and fastened one end of the door, but owing to the fastening at the opposite end being strained they were unable to get that properly closed. At about 4.5 p.m. the shunting engine was brought to the shed to remove the waggons, and at the request of the shed foreman, James Horner, they stood clear for that to be done, after which Horner gave permission to the shunter for the waggons to be taken away. At that time another engine entered the yard, and before the shunting engine had left the shed, seeing there was likely to be some delay, without first advising the shunter, Horner instructed Burgess and Miller to again try to close the door referred to, but whilst he and they were standing in the waggon and engaged in using a lever for extra pressure on the door, the waggons were suddenly drawn forward, with the result that losing their balance both goods porters were thrown over the rear end and injured as stated.</p>	<p>In this case, however anxious Horner may have been to facilitate the work, as he fully admits, he did wrong in requesting his men to again get in the waggon after he had given instructions for the latter to be moved. I am therefore of opinion that he is alone to blame for the accident.</p> <p>A. F.</p>	

For other Reports of Inquiries into Accidents which have occurred during the six months, see [Cd. 1232].









RAILWAY ACCIDENTS.

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## RETURNS

OF

# ACCIDENTS AND CASUALTIES

AS REPORTED TO THE BOARD OF TRADE BY THE SEVERAL RAILWAY COMPANIES  
IN THE UNITED KINGDOM,

During the Nine Months ending 30th September 1902,

In pursuance of the Regulation of Railways Act (1871), 34 & 35 Vict. cap. 78 ;

TOGETHER WITH

REPORTS OF THE INSPECTING OFFICERS, ASSISTANT  
INSPECTING OFFICERS, AND SUB-INSPECTORS OF THE  
RAILWAY DEPARTMENT TO THE BOARD OF TRADE,

UPON

## CERTAIN ACCIDENTS

Which were inquired into.

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Presented to both Houses of Parliament by Command of His Majesty.

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PRINTED FOR HIS MAJESTY'S STATIONERY OFFICE.  
By DARLING & SON, LTD., 34-40, BACON STREET, E.

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[Cd. 1374.] Price 1s. 6d.

# TABLE OF CONTENTS.

	PAGE
SUMMARY of ACCIDENTS and CASUALTIES reported to the BOARD of TRADE during the Nine Months ending 30th September 1902 ... ..	3
TABLES :—	
GENERAL NOTE showing basis on which TABLES are COMPILED ... ..	8
No. 1.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	9
No. 2.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, in the different CLASSES of ACCIDENTS to TRAINS ... ..	10
No. 3.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS, or by the MOVEMENT of RAILWAY VEHICLES ... ..	12
No. 4.—NUMBER of PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the different CLASSES of ACCIDENTS occurring on the Lines of the several RAILWAY COMPANIES, to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the COMPANIES ... ..	14
No. 5.—NUMBER of PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS, or the MOVEMENT of RAILWAY VEHICLES—	
A. PASSENGERS ... ..	16
B. SERVANTS of COMPANIES and CONTRACTORS ... ..	18
C. OTHER PERSONS ... ..	24
No. 6.—NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the INJURIES; with figures for the corresponding period of the previous Year ... ..	26
No. 7.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES; and also the Total Number of Persons employed in each Class of Service ... ..	27
No. 8.—SUMMARY STATEMENT of the NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD of TRADE as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, on the PREMISES of the RAILWAY COMPANIES; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	28
No. 9.—NUMBER of SERVANTS of COMPANIES and of CONTRACTORS reported by the several RAILWAY COMPANIES to the BOARD of TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES ... ..	30
No. 10.—STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, classified according to the NATURE of the EMPLOYMENT and AGE of the PERSONS INJURED and the NATURE of the INJURIES; and also the Total Number of Persons employed in each Class of Service ... ..	36
No. 11.—SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., reported to the BOARD of TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM, classified according to the NATURE of the ACCIDENT; with figures for the UNITED KINGDOM for the corresponding period of the previous Year ... ..	37

**Summary of Accidents and Casualties which have been reported to the Board of Trade as having occurred upon the Railways in the United Kingdom during the Nine Months ending 30th September 1902.**

**I.—ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c.**

Accidents to trains, rolling-stock, permanent-way, &c., caused the death of 9 persons and injury to 690 persons, viz. :—

	Total for 9 months ending 30th September 1902.		Total for the corresponding period in 1901.	
	Killed.	Injured.	Killed.	Injured.
Passengers ... ..	5	607	—	279
Servants of Companies ... ..	2	74	6	102
Other Persons ... ..	2	9	2	2
Total ... ..	9	690	8	383

Of the 9 persons killed and 690 injured, 1 passenger was killed and 134 passengers 10 servants and 1 other person were injured in collisions between passenger trains or parts of passenger trains ; 1 servant was killed and 73 passengers and 11 servants were injured in collisions between passenger trains and goods or mineral trains, light engines, or other moving vehicles ; 2 persons were killed and 25 servants and 5 other persons were injured in collisions between goods trains, light engines, or other moving vehicles ; 25 passengers and 3 servants were injured in collisions between trains and vehicles standing foul of the line ; 67 passengers and 1 servant were injured in collisions between trains and buffer-stops or vehicles at rest, caused by trains running into stations at too high a speed ; 30 passengers 6 servants and 3 other persons were injured in collisions between trains and buffer-stops, &c., from causes other than the above ; 5 passengers and 2 servants were injured by trains coming in contact with projections from other trains on parallel lines ; 70 passengers and 2 servants were injured by passenger trains or parts of passenger trains leaving the rails ; 1 servant was killed and 6 injured by goods trains or parts of goods trains, light engines, &c., leaving the rails ; 1 servant was injured by a collision between a train and crossing gates ; 1 servant was injured by the bursting of a tube of an engine ; 4 passengers were killed and 197 passengers and 6 servants were injured by accidents arising from the failure of rolling-stock (wheels, tyres, axles, &c.) ; and 6 passengers were injured in other accidents to trains, &c.

Altogether, including accidents in which no personal injury was sustained, there were reported during the nine months, 22 collisions between passenger trains or parts of passenger trains ; 26 collisions between passenger trains and goods or mineral trains, light engines, &c. ; 19 collisions between goods trains, parts of goods trains, light engines, &c. ; 13 collisions between trains and vehicles standing foul of the line ; 24 collisions between trains and buffer-stops, &c., of which 13 were caused by trains running into stations or sidings at too high a speed, and 11 were due to other causes ; 7 cases of trains coming in contact with projections from other trains on parallel lines ; 45 cases of passenger trains or parts of passenger trains leaving the rails ; 9 cases of goods, &c., trains or parts of goods trains leaving the rails ; 129 cases of trains running through gates at level-crossings or into other obstructions\* ; 13 cases of fires in trains or vehicles ; and 2 cases coming under the heading of miscellaneous accidents to trains.

\* During the nine months, 17 horses, 25 beasts and cows, 59 sheep, 2 deer, 3 dogs, and 7 pigs were run over and killed ; and 1 horse, 1 beast, 2 sheep, and 2 dogs were injured.



The following accidents to, and failures of, rolling-stock and permanent-way were also reported, viz. :—1 case of the bursting of boilers, tubes, &c., of engines ; 5 cases of the failure of machinery, springs, &c., of engines ; 176 failures of tyres ; 3 failures of wheels ; 124 failures of axles ; 10 failures of couplings ; 2 failures of tunnels, bridges, &c. ; 234 failures of rails ; 6 cases of flooding of the permanent-way ; 4 slips in cuttings or embankments ; 7 fires at stations ; and 1 case not coming within the above descriptions.

Of the 176 tyres which failed, 12 were engine-tyres, 1 was a tender-tyre, 4 were coach-tyres, 14 were van-tyres, and 145 were waggon-tyres ; of the waggons, 101 belonged to owners other than the Railway Companies ; 91 of the tyres were made of iron and 85 of steel ; 1 of the tyres was fastened to the wheel by Gibson's patent method and left the wheel when it failed ; 2 by Mansell's patent method, 1 of which left the wheel when it failed ; 1 by Beattie's patent method ; 155 by bolts and screws, 7 of which left their wheels when they failed ; and 17 by other methods, 2 of which left their wheels when they failed ; 18 tyres broke at screw or bolt holes, 57 in the solid, and 101 split longitudinally or bulged.

Of the 124 axles which failed, 75 were engine axles, viz., 59 crank or driving, and 16 leading or trailing ; 9 were tender axles ; 5 were coach axles ; and 35 were waggon axles ; of the waggons, 18 belonged to owners other than the Railway Companies. Of the 59 crank or driving axles, 11 were made of iron and 48 of steel. The average mileage of the crank or driving axles made of iron was 402,268 miles, and of 46 of the crank or driving axles made of steel 218,056 miles.\*

Of the 234 rails which broke, 45 were double-headed, 151 were single-headed, 1 was a bridge rail, and 37 were Vignoles' rails ; of the double-headed rails, 20 had been turned. All of these rails were made of steel.

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## II.—ACCIDENTS TO PASSENGERS FROM CAUSES OTHER THAN ACCIDENTS TO TRAINS, ROLLING-STOCK, PERMANENT-WAY, &c., INCLUDING ACCIDENTS FROM THEIR OWN WANT OF CAUTION OR MISCONDUCT ; ACCIDENTS TO PERSONS PASSING OVER LEVEL-CROSSINGS ; TRESPASSERS ; AND OTHERS.

Of the 459 persons killed and 1,502 injured under this heading, 83 of the killed and 1,277 of the injured were passengers. Of these, 23 were killed and 119 injured by falling between carriages and platforms, viz., 14 killed and 56 injured when getting into, and 9 killed and 63 injured when alighting from, trains ; 8 were killed and 687 injured by falling on to platforms, ballast, &c., viz., 86 injured when getting into, and 8 killed and 601 injured when alighting from, trains ; 4 were killed and 8 injured by falling off platforms and being struck or run over by trains ; 16 were killed and 6 injured whilst passing over the line at stations, viz., 9 killed and 5 injured at stations where there is a subway or footbridge, and 7 killed and 1 injured at stations where there is neither a subway nor footbridge ; 266 were injured by the closing of carriage doors ; 21 were killed and 52 injured by falling out of carriages during the travelling of trains ; and 11 were killed and 139 injured from other causes connected with the movement of trains or railway vehicles. 39 persons were killed and 17 injured whilst passing over railways at level-crossings, viz., 15 killed and 12 injured at public level-crossings, 16 killed and 3 injured at occupation-crossings, and 8 killed and 2 injured at foot-crossings. 204 persons were killed and 102 injured when trespassing on the railways ; 106 persons committed suicide on railways, and 13 persons were injured while apparently attempting to commit suicide ; 14 persons were killed and 61 injured while on business at stations and sidings ; and of other persons not specifically classed, 13 were killed and 32 injured.

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## III.—ACCIDENTS TO SERVANTS IN THE EMPLOY OF RAILWAY COMPANIES OR CONTRACTORS, CAUSED BY THE TRAVELLING OF TRAINS OR THE MOVEMENT OF VEHICLES USED EXCLUSIVELY UPON RAILWAYS.

During the nine months there were 343 servants of companies or contractors reported as having been killed and 2,694 injured, in addition to those included in Division I.

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\* With regard to the high average mileage of the iron axles that failed it is to be noted that axles are no longer made of this material. The few still in use are therefore of exceptional quality.

12 were killed and 363 injured whilst coupling or uncoupling vehicles ; 9 were injured by coming in contact, whilst riding on vehicles during shunting, with other vehicles, &c., standing on adjacent lines ; 2 were killed and 13 injured while passing over or standing upon buffers during shunting ; 6 were killed and 136 injured in getting on or off, or by falling off, engines, waggons, &c., during shunting ; 7 were killed and 258 injured while braking, spragging, or chocking wheels ; 1 was killed and 62 injured whilst attending to ground-points ; 9 were killed and 264 injured whilst moving vehicles by capstans, turntables, props, horses, &c., during shunting ; and 31 were killed and 323 injured by various other accidents during shunting operations ; 7 were killed and 46 injured by falling off engines, &c., during the travelling of trains ; 3 were killed and 181 injured while getting on or off engines, vans, &c., during the travelling of trains ; 6 were killed and 57 injured by coming in contact with over-bridges or erections on the sides of the line during the travelling of trains ; 1 was killed and 251 were injured while attending to the machinery, &c., of engines in steam ; 66 were killed and 93 injured while working on the permanent-way, sidings, &c. ; 3 were killed while attending to gates at level crossings ; 100 were killed and 189 injured while walking, crossing, or standing on the line on duty, of whom 71 were killed and 151 injured in and about stations, and 29 were killed and 38 injured at other parts of the line ; 26 were killed and 71 injured by being caught between vehicles ; 7 were killed and 49 injured by falling or being caught between trains and platforms, walls, &c. ; 26 were killed and 29 injured whilst walking on the line on the way home or to work ; and 30 were killed and 300 injured from various other causes.

Altogether, the number of persons killed and injured on railways in the United Kingdom in the course of public traffic, during the nine months ending 30th September 1902, as reported to the Board of Trade, was as follows :—

	Killed.	Injured.	Total for the corresponding period in 1901.		Increase.		Decrease.	
			Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>Passengers :</b>								
From accidents to trains, rolling-stock, permanent-way, &c.	5	607	—	279	5	328	—	—
By accidents from other causes ..	83	1,277	84	1,163	—	114	1	—
<b>Servants of companies or contractors :*</b>								
From accidents to trains, rolling-stock, permanent-way, &c.	2	74	6	102	—	—	4	28
By accidents from other causes ...	343	2,694	345	3,005	—	—	2	311
<b>Other Persons :</b>								
From accidents to trains, &c. ...	2	9	2	2	—	7	—	—
Persons passing over railways at level-crossings.	39	17	42	22	—	—	3	5
Trespassers (including suicides) ...	310	115	314	128	—	—	4	13
Persons on business at stations, &c., and other persons not coming in above classifications.	27	93	28	107	—	—	1	14
<b>Total ... ..</b>	<b>811</b>	<b>4,886</b>	<b>821</b>	<b>4,808</b>	<b>—</b>	<b>78</b>	<b>10</b>	<b>—</b>

\* Of contractors' servants 12 were killed and 13 injured.

In addition to the above, the Railway Companies have reported to the Board of Trade, in pursuance of the 6th Section of the Regulation of Railways Act, 1871, the following accidents which occurred upon their premises, but in which the movement of vehicles used exclusively upon railways was not concerned, namely :—5 passengers killed and 217 injured whilst ascending or descending steps at stations ; 59 injured by being struck by barrows, falling over packages, &c., on station platforms ; 3 killed and 59 injured by falling off platforms ; and 1 killed and 121 injured from other causes. Of servants of companies or contractors, 4 killed and 1,218 injured whilst loading, unloading, or sheeting waggons ; 1 killed and 455 injured whilst moving or carrying goods in stations or sheds ; 1 killed and 141 injured whilst working at cranes or capstans ; 307 injured by the falling of waggon-doors, lamps, bales of goods, &c. ; 941 injured whilst attending to engines at rest in sheds, &c. ; 1 killed and 698 injured by falling off, or when getting on or off, engines or vehicles at rest : 160 injured by falling off or when getting on or off platforms ; 6 killed and 220 injured by falling off ladders,

scaffolds, &c.; 1 killed and 476 injured by stumbling whilst walking on the line; 38 injured by being trampled on or kicked by horses whilst engaged in railway work; 6 injured by being struck by articles thrown from passing trains; 1 killed and 483 injured by the falling of rails, sleepers, &c., when at work on the line; 6 killed and 841 injured in other ways when at work on the line or in sidings; and 9 killed and 1,362 injured from various other causes. Of persons transacting business on the companies' premises, 12 killed and 242 injured; and of other persons not coming within the above classifications, 12 killed and 80 injured; making a total in this class of accidents of 63 persons killed and 8,124 injured.

Thus the total number of personal accidents reported to the Board of Trade by the several Railway Companies during the nine months amounts to 874 persons killed and 13,010 injured.

Board of Trade,  
December 15th, 1902.

FRANCIS J. S. HOPWOOD

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**TABLES OF ACCIDENTS.**

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### NOTE.

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All accidents which occur in the working of railways or on railway premises to persons other than servants of the companies (described in the following Tables as "Passengers" and "Other Persons") are required to be reported to the Board of Trade, however slight the injuries may be ; but, as regards servants of the companies, only those accidents which prevent the servant injured from being employed for five hours on his ordinary work on any one of the three working days next after the accident are reported.

The following Tables therefore show the total number of persons other than servants of the companies injured from accidents arising in the working of railways or on railway premises, but only the number of servants whose injuries prevented them working for five hours on any one of the three working days next after the accident.

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TABLE No. 1.

**Summary Statement of the Number of Passengers, Servants of the Companies and of Contractors, and other Persons reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in each DIVISION of the UNITED KINGDOM in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES, during the Nine Months ending 30th September 1902; with corresponding figures for the UNITED KINGDOM for the Nine Months ending 30th September, 1901.**

	1902.								1901.	
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.		UNITED KINGDOM.		UNITED KINGDOM.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	5	493	...	110	...	4	5	607	...	279
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	65	1,190	14	74	4	13	83	1,277	84	1,163
<b>TOTAL OF PASSENGERS ...</b>	<b>70</b>	<b>1,683</b>	<b>14</b>	<b>184</b>	<b>4</b>	<b>17</b>	<b>88</b>	<b>1,884</b>	<b>84</b>	<b>1,442</b>
<b>SERVANTS :—</b>										
In accidents to trains ... (For details, see Table No. 2, p. 10.)	2	64	...	7	...	3	2	74	6	102
From other accidents connected with the running of trains or the movement of railway vehicles. (For details, see Table No. 3, p. 12.)	272	2,329	62	316	9	49	343	2,694	345	3,005
<b>TOTAL OF SERVANTS ...</b>	<b>274</b>	<b>2,393</b>	<b>62</b>	<b>323</b>	<b>9</b>	<b>52</b>	<b>345</b>	<b>2,768</b>	<b>351</b>	<b>3,107</b>
<b>OTHER PERSONS :—</b>										
In accidents to trains. (See Table No. 2.)	2	5	...	4	...	...	2	9	2	2
While passing over railways at level crossings. (See Table No. 3.)	35	15	1	2	3	...	39	17	42	22
While trespassing on line. (See Table No. 3.)	144	68	45	27	15	7	204	102	211	114
Suicides and attempted suicides. (See Table No. 3.)	88	12	16	1	2	...	106	13	103	14
On business at stations and sidings. (See Table No. 3.)	11	55	2	5	1	1	14	61	14	88
Miscellaneous (not included above). (See Table No. 3.)	9	21	4	6	...	5	13	32	14	19
<b>TOTAL OF OTHER PERSONS</b>	<b>289</b>	<b>176</b>	<b>68</b>	<b>45</b>	<b>21</b>	<b>13</b>	<b>378</b>	<b>234</b>	<b>386</b>	<b>259</b>
<b>GRAND TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.</b>	<b>633</b>	<b>4,252</b>	<b>144</b>	<b>552</b>	<b>34</b>	<b>82</b>	<b>811</b>	<b>4,886</b>	<b>821</b>	<b>4,808</b>

*Note.*—For the number of persons killed or injured on railway premises otherwise than through accidents to trains or the movement of railway vehicles, see Tables 8, 9, and 10.

## NUMBER OF PERSONS KILLED OR

TABLE No. 2.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, in the different CLASSES of

CLASS OF ACCIDENT.	NUMBER OF PASSENGERS.								NUMBER OF SERVANTS.							
	England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.	
	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.
1. Collisions between passenger trains or parts of passenger trains.	1	91	...	42	...	1	1	184	...	9	...	1	...	...	...	10
2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.	...	48	...	25	...	...	...	73	1	10	...	1	...	...	1	11
3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.	...	...	...	...	...	...	...	...	...	23	...	2	...	...	...	25
4. Collisions between trains and vehicles standing foul of the line.	...	13	...	12	...	...	...	25	...	2	...	1	...	...	...	3
5. Collisions between trains and buffer-stops, or vehicles at rest:																
(a) From trains running into stations at too high a speed.	...	63	...	1	...	3	...	67	...	1	...	...	...	...	...	1
(b) From other causes ...	...	30	...	...	...	...	...	30	...	5	...	1	...	...	...	6
6. Trains coming in contact with projections from other trains on parallel lines.	...	5	...	...	...	...	...	5	...	2	...	...	...	...	...	2
7. Passenger trains or parts of passenger trains leaving the rails.	...	47	...	23	...	...	...	70	...	1	...	...	...	1	...	2
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	...	...	...	...	...	...	...	...	1	5	...	1	...	...	1	6
9. Trains running through gates at level-crossings, or into other obstacles.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
10. The bursting of boilers or tubes, &c., of engines.	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines).	4	196	...	1	...	...	4	197	...	4	...	...	...	2	...	6
12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13. Fires in trains ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14. Other accidents ...	...	...	...	6	...	...	...	6	...	...	...	...	...	...	...	...
<b>TOTAL</b> ..	<b>5</b>	<b>493</b>	<b>...</b>	<b>110</b>	<b>...</b>	<b>4</b>	<b>5</b>	<b>607</b>	<b>2</b>	<b>64</b>	<b>...</b>	<b>7</b>	<b>...</b>	<b>3</b>	<b>2</b>	<b>74</b>

N.B.—The Board of Trade state the cause of accident as returned by the Companies but do not guarantee

## INJURED IN ACCIDENTS TO TRAINS.

TABLE No. 2.

reported to the BOARD of TRADE by RAILWAY COMPANIES, as having been KILLED or INJURED ACCIDENTS to TRAINS, during the Nine Months ending 30th September 1902.

NUMBER OF OTHER PERSONS.								TOTAL OF PASSENGERS, SERVANTS, AND OTHER PERSONS.								CLASS OF ACCIDENT.
England and Wales.		Scotland.		Ireland.		United Kingdom.		England and Wales.		Scotland.		Ireland.		United Kingdom.		
Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	Killed.	In-jured.	
...	...	...	1	...	...	...	1	1	100	...	44	...	1	1	145	1. Collisions between passenger trains or parts of passenger trains.
...	...	...	...	...	...	...	...	1	58	...	26	...	...	1	84	2. Collisions between passenger trains and goods or mineral trains, light-engines, or other moving vehicles.
2	5	...	...	...	...	2	5	2	28	...	2	...	...	2	30	3. Collisions between goods trains or parts of goods trains, light-engines, or other moving vehicles.
...	...	...	...	...	...	...	...	...	15	...	13	...	...	...	28	4. Collisions between trains and vehicles standing foul of the line.
...	...	...	...	...	...	...	...	...	64	...	1	...	3	...	68	5. Collisions between trains and buffer-stops, or vehicles at rest : (a) From trains running into stations at too high a speed.
...	...	...	3	...	...	...	3	...	35	...	4	...	...	...	39	(b) From other causes.
...	...	...	...	...	...	...	...	...	7	...	...	...	...	...	7	6. Trains coming in contact with projections from other trains on parallel lines.
...	...	...	...	...	...	...	...	...	48	...	23	...	1	...	72	7. Passenger trains or parts of passenger trains leaving the rails.
...	...	...	...	...	...	...	...	1	5	...	1	...	...	1	6	8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	9. Trains running through gates at level-crossings, or into other obstacles.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	10. The bursting of boilers or tubes, &c., of engines.
...	...	...	...	...	...	...	...	4	200	...	1	...	2	4	203	11. Other accidents arising from the failure of rolling-stock (including the failure of wheels, tyres, axles, couplings, brake-apparatus, and ropes on inclines).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12. Other accidents arising from the failure of permanent-way (including failure of tunnels, bridges, viaducts, culverts, and rails, the flooding of the permanent-way, and slips in cuttings and embankments).
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	13. Fires in trains.
...	...	...	...	...	...	...	...	...	...	...	6	...	...	...	6	14. Other accidents.
2	5	...	4	...	...	2	9	9	562	...	121	...	7	9	690	TOTAL.

or otherwise adopt the statement, except in cases where an official inquiry has been held.



## NUMBER OF PERSONS KILLED OR INJURED FROM THE RUNNING

TABLE No. 3.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS  
in each DIVISION of the UNITED KINGDOM, by the RUNNING of TRAINS or by the

	ENGLAND AND WALES.		SCOTLAND.	
	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>				
1. From falling between trains and platforms :				
(1) When entering trains ... ..	8	48	5	5
(2) When alighting from trains ... ..	7	55	2	8
2. From falling on to the platform, ballast, &c. :				
(1) When entering trains ... ..	...	84	...	2
(2) When alighting from trains ... ..	7	579	...	21
3. From falling off platforms and being struck or run over by trains.	3	6	1	1
4. Whilst crossing the line at stations :				
(1) Where there is either a subway or footbridge	8	5	1	...
(2) Where there is neither a subway nor footbridge	7	...	...	...
5. By the closing of carriage doors ... ..	...	242	...	21
6. From falling out of carriages during the running of trains.	16	41	4	11
7. By other accidents ... ..	9	130	1	5
<b>TOTAL OF PASSENGERS ... ..</b>	<b>65</b>	<b>1,190</b>	<b>14</b>	<b>74</b>
<b>SERVANTS :—</b>				
By accidents occurring during shunting operations, viz :				
1. Whilst coupling or uncoupling vehicles ...	8	312	2	44
2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines.	...	7	...	2
3. While passing over, under, or standing on buffers.	...	6	2	6
4. When getting on or off, or falling off engines, waggons, &c.	5	114	1	23
5. Whilst braking, spragging, or chocking wheels	6	230	1	27
6. Whilst attending to ground-points ... ..	...	51	1	10
7. Whilst moving vehicles by capstans, turntables, props, levers, &c.	7	239	2	15
8. By other accidents not included in the preceding.	23	283	7	32
9. From falling off trains, engines, &c., in motion ...	5	35	2	10
10. When getting on or off engines, vans, &c., during the running of trains.	3	160	...	18
11. By coming in contact with over-bridges or erections on the sides of the line.	5	46	1	6
12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion.	1	228	...	21
13. Whilst working on the permanent-way, sidings, &c.	48	79	18	14
14. Whilst attending to gates at level-crossings ...	2	...	1	...
15. Whilst walking, crossing, or standing on the line on duty :				
(1) At stations ... ..	60	126	9	23
(2) At other parts of the line ... ..	27	27	2	11
16. From being caught between vehicles ... ..	22	56	4	14
17. From falling or being caught between trains and platforms, walls, &c.	4	41	1	7
18. Whilst walking, &c., along the line to or from work	23	24	2	5
19. Miscellaneous ... ..	23	265	6	29
<b>TOTAL OF SERVANTS ... ..</b>	<b>272</b>	<b>2,329</b>	<b>62</b>	<b>316</b>
<b>OTHER PERSONS :—</b>				
1. Whilst passing over railways at level-crossings ...	35	15	1	2
2. Whilst trespassing on line ... ..	114	68	45	27
3. Suicides and attempted suicides ... ..	88	12	16	1
4. On business at stations and sidings ... ..	11	55	2	5
5. Miscellaneous (not included above) ... ..	9	21	4	6
<b>TOTAL OF OTHER PERSONS ... ..</b>	<b>267</b>	<b>171</b>	<b>68</b>	<b>41</b>
<b>GRAND TOTAL ... ..</b>	<b>624</b>	<b>3,690</b>	<b>144</b>	<b>481</b>

N.B.—The Board of Trade state the cause of the accident as returned by the Companies, but do not

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 3.

reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED  
MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September, 1902.

IRELAND.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
1	3	14	56	<b>PASSENGERS :—</b>  1. From falling between trains and platforms : (1) When entering trains. (2) When alighting from trains. 2. From falling on to the platform, ballast, &c. : (1) When entering trains. (2) When alighting from trains. 3. From falling off platforms and being struck or run over by trains. 4. Whilst crossing the lines at stations : (1) Where there is either a subway or footbridge. (2) Where there is neither a subway nor footbridge. 5. By the closing of carriage doors. 6. From falling out of carriages during the running of trains. 7. By other accidents.
...	...	9	63	
...	...	...	86	
1	1	8	601	
...	1	4	8	
...	...	9	5	
...	1	7	1	
...	8	...	266	
1	...	21	52	
1	4	11	139	
4	13	83	1,277	<b>TOTAL OF PASSENGERS.</b>
2	7	12	363	<b>SERVANTS :—</b>  By accidents occurring during shunting operations, viz. : 1. Whilst coupling or uncoupling vehicles. 2. By coming in contact, whilst riding on vehicles, with other vehicles, &c., standing on adjacent lines. 3. While passing over, under, or standing on buffers. 4. When getting on or off, or falling off engines, waggons, &c. 5. Whilst braking, spragging, or chocking wheels. 6. Whilst attending to ground-points. 7. Whilst moving vehicles by capstans, turn-tables, props, levers, &c. 8. By other accidents not included in the preceding. 9. From falling off trains, engines, &c., in motion. 10. When getting on or off engines, vans, &c., during the running of trains. 11. By coming in contact with over-bridges or erections on the sides of the line. 12. Whilst attending to, or by the failure of, the machinery, &c., of engines in motion. 13. Whilst working on the permanent-way, sidings, &c. 14. Whilst attending to gates at level-crossings. 15. Whilst walking, crossing, or standing on the line on duty : (1) At stations. (2) At other parts of the line. 16. From being caught between vehicles. 17. From falling or being caught between trains and platforms, walls, &c. 18. Whilst walking, &c., along the line to or from work. 19. Miscellaneous.
...	...	...	9	
...	1	2	13	
...	...	6	136	
...	1	7	258	
...	1	1	62	
...	10	9	264	
1	8	31	323	
...	1	7	46	
...	8	3	181	
...	5	6	57	
...	2	1	251	
...	...	66	93	
...	...	3	...	
2	2	71	151	
...	...	29	38	
...	1	26	71	
2	1	7	49	
1	...	26	29	
1	6	30	300	
9	49	343	2,694	<b>TOTAL OF SERVANTS.</b>
3	...	39	17	<b>OTHER PERSONS :—</b>  1. Whilst passing over railways at level-crossings. 2. Whilst trespassing on line. 3. Suicides and attempted suicides. 4. On business at stations and sidings. 5. Miscellaneous (not included above).
15	7	204	102	
2	...	106	13	
1	1	14	61	
...	5	13	32	
21	13	376	225	<b>TOTAL OF OTHER PERSONS.</b>
34	75	802	4,196	<b>GRAND TOTAL.</b>

guarantee or otherwise adopt the statement, except in cases where an official inquiry has been held.

TABLE No. 4.

NUMBER of PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or to TRAINS, ROLLING-STOCK, and PERMANENT-WAY of the

NAME OF COMPANY.	1		2		3		4		5				6		7		8	
	Collisions between Passenger Trains or Parts of Passenger Trains.		Collisions between Passenger Trains and Goods or Mineral Trains, Light-Engines, &c.		Collisions between Goods Trains or Parts of Goods Trains, Light-Engines, &c.		Collisions between Trains and Vehicles standing foul of the Line.		Collisions between Trains and Buffer-Stops, or Vehicles at rest.				Trains coming in Contact with Projections from other Trains on Parallel Lines.		Passenger Trains or Parts of Passenger Trains leaving the Rails.		Goods Trains or Parts of Goods Trains, Light-Engines, &c. leaving the Rails.	
	K.*	L†	K.	L.	K.	L.	K.	L.	(a.) From Trains running into Stations at too high a speed.		(b.) From other Causes.		K.	L.	K.	L.	K.	L.
ENGLAND AND WALES.																		
Cambrian ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Great Central ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...
Great Eastern ... ..	...	1	...	7	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Great Northern ... ..	...	15	...	...	...	2	...	...	...	...	...	...	...	2	...	...	...	...
Great Western ... ..	...	...	1	84	...	...	...	...	...	3	...	15	...	1	...	...	...	...
Lancashire and Yorkshire...	...	4	...	...	...	1	...	4	...	35	...	2	...	...	...	...	...	...
London and North-Western	1	14	...	5	...	6	...	3	...	...	...	1	...	...	...	...	1	4
London and North-Western and Great-Western Joint.	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western	...	3	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
London, Brighton, and South Coast.	...	7	...	1	...	...	...	...	...	17	...	...	...	2	...	45	...	...
Mersey and Wirral Joint ...	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...
Midland ... ..	...	...	...	1	...	4	...	...	...	...	...	4	...	...	...	...	...	...
Midland and Great-Western Joint.	...	...	...	...	...	...	...	8	...	...	...	...	...	...	...	...	...	...
North-Eastern ... ..	...	40	...	7	...	4	...	...	...	1	...	7	...	...	...	1	...	1
North-Eastern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...
North Staffordshire ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Sheffield and Midland Joint	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South-Eastern and Chatham	...	9	...	...	...	...	...	...	...	5	...	1	...	...	...	...	...	...
South Wales Mineral ...	...	...	...	...	...	2	10	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES ...	1	100	1	58	2	28	...	15	...	64	...	35	...	7	...	48	1	5
SCOTLAND.																		
Caledonian ... ..	...	4	...	3	...	1	...	...	...	...	...	4	...	...	...	...	...	1
Dundee and Arbroath Joint	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western	...	...	...	19	...	...	...	...	...	...	...	...	...	...	...	23	...	...
Glasgow District Subway...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Highland ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
North British ... ..	...	39	...	4	...	1	...	12	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	...	44	...	26	...	2	...	13	...	1	...	4	...	...	...	23	...	1
IRELAND.																		
Belfast and County Down	...	...	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...
Belfast and Northern Counties.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Southern and Western	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West Clare ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
TOTAL, IRELAND ...	...	1	...	...	...	...	...	...	...	3	...	...	...	...	...	1	...	...
TOTAL, UNITED KINGDOM ...	1	145	1	84	2	...	...	28	...	68	...	39	...	7	...	72	1	6

NOTE.—In the above Table the persons killed and injured from accidents are entered against the Company on whose  
 \* Killed.  
 † Injured.

**INJURED IN ACCIDENTS TO TRAINS.****TABLE No. 4.**

**INJURED in the different CLASSES of ACCIDENTS occurring on the LINES of the several RAILWAY COMPANIES during the Nine Months ending 30th September, 1902.**

9 Trains running through Gates at Level Crossings or into other Obstacles.		10 The bursting of Boilers or Tubes, &c., of Engines.		11 Accidents arising from the Failure of Rolling-Stock (including Failure of Wheels, Tyres, Axles, &c.).		12 Accidents arising from the Failure of Permanent-Way (including Failure of Tunnels, Bridges, Rails, &c.).		13 Fires in Trains.		14 Other Accidents.		Total Number of Persons of all Classes		Number of Passengers and others.		Number of Servants.		NAME OF COMPANY.
K*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	ENGLAND AND WALES.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	Cambrian.
...	...	...	...	4	196	...	...	...	...	...	...	4	205	4	202	...	3	Great Central.
...	...	...	...	...	...	...	...	...	...	...	...	...	19	...	17	...	2	Great Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	19	...	17	...	2	Great Northern.
...	1	...	...	...	...	...	...	...	...	...	...	1	54	...	48	1	6	Great Western.
...	...	...	...	...	3	...	...	...	...	...	...	...	49	...	43	...	6	Lancashire and Yorkshire.
...	...	...	...	...	...	...	...	...	...	...	...	2	33	1	13	1	20	London and North-Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	London and North-Western and Great-Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	3	...	1	London and South-Western.
...	...	...	1	...	1	...	...	...	...	...	...	...	74	...	71	...	3	London, Brighton, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	...	...	7	...	7	...	...	Mersey and Wirral Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	2	...	...	Metropolitan District.
...	...	...	...	...	...	...	...	...	...	...	...	...	9	...	5	...	4	Midland.
...	...	...	...	...	...	...	...	...	...	...	...	...	8	...	6	...	2	Midland and Great-Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	61	...	55	...	6	North-Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	4	...	...	North-Eastern and London and North-Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	North Staffordshire.
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...	...	Sheffield and Midland Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	15	...	13	...	2	South-Eastern and Chatham.
...	...	...	...	...	...	...	...	...	...	...	...	2	10	2	5	...	5	South Wales Mineral.
...	1	...	1	4	200	...	...	...	...	...	...	9	562	7	498	2	64	TOTAL, ENGLAND AND WALES.
...	...	...	...	...	1	...	...	...	...	...	...	...	14	...	11	...	3	SCOTLAND.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	...	42	...	41	...	1	Dundee and Arbroath Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Glasgow and South-Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	Glasgow District Subway.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Highland.
...	...	...	...	...	...	...	...	...	...	6	...	62	...	61	...	1	...	North British.
...	...	...	...	...	1	...	...	...	...	6	...	121	...	114	...	7	...	TOTAL, SCOTLAND.
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	...	...	IRELAND.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	Belfast and County Down.
...	...	...	...	...	2	...	...	...	...	...	...	...	2	...	...	...	2	Belfast and Northern Counties.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	Great Southern and Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	West Clare.
...	...	...	...	...	2	...	...	...	...	...	...	...	7	...	4	...	3	TOTAL, IRELAND.
...	1	...	1	4	203	...	...	...	...	6	9	690	7	616	2	74	...	TOTAL, UNITED KINGDOM.

Lines the accidents occurred, except in cases of injuries arising from the accidents enumerated in Columns Nos. 10 and 11.

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several  
during the Nine Months

## A. PASSENGERS.

NAME OF COMPANY.	1				2				3		4				5		6		7		Total	
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.		Whilst crossing the line at Stations.		By the closing of Carriage Doors.		From falling out of Carriages during the running of Trains.		By other Accidents					
	(a)		(b)		(a)		(b)															
	When entering Trains.		When alighting from Trains.		When entering Trains.		When alighting from Trains.				Where there is either a Subway or Foot-bridge.								Where there is neither a Subway nor Foot-bridge.			
K*	L†	K	L	K	L	K	L	K	L	K	L	K	L	K	L	K	L	K	L	K	L	
ENGLAND AND WALES.																						
Barry ... ..	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
Brecon and Merthyr ... ..	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
Cambrian ... ..	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	
Central London ... ..	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	2	
Cheshire Lines ... ..	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	
East London Joint ... ..	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1	
Furness ... ..	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	...	1	...	...	...	4	
Great Central ... ..	...	2	...	...	...	1	5	...	...	1	...	1	...	...	8	...	1	1	1	4	17	
Great Eastern ... ..	1	9	...	5	...	24	...	42	1	1	2	...	1	...	13	...	5	...	14	5	113	
Great Northern ... ..	1	1	...	1	...	...	8	...	...	...	...	...	...	...	2	...	...	1	2	2	14	
Great Western ... ..	...	4	...	2	...	4	...	34	...	...	1	...	1	...	17	...	5	...	9	2	75	
Lancashire and Yorkshire ... ..	...	...	1	3	...	...	13	...	1	...	1	...	...	...	16	2	2	1	1	4	37	
Lancashire and Yorkshire and London and North-Western Joint.	...	...	...	2	...	...	1	3	...	...	...	...	...	...	2	...	...	1	2	2	9	
Lancashire, Derbyshire, and East Coast.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	
London and North-Western ... ..	...	3	2	6	...	4	...	77	...	2	2	...	1	...	70	...	6	1	30	6	198	
London and North-Western and Great Western Joint.	...	...	...	...	...	1	...	12	...	...	...	...	...	...	4	2	1	...	2	2	20	
London and North-Western and Midland Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	2	
London and South Western ... ..	...	2	1	3	...	13	1	125	1	...	...	1	1	...	15	1	5	...	11	5	175	
London and South-Western and London, Brighton and South Coast Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	1	1	
London, Brighton, and South Coast.	...	...	1	3	...	...	1	16	...	...	...	...	...	...	4	2	1	...	9	4	33	
London, Tilbury, and South-end.	1	...	1	...	...	1	...	13	...	...	...	...	...	...	...	...	1	...	2	2	17	
Manchester, South Junction, and Altrincham.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	
Mersey ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	
Metropolitan ... ..	...	2	...	5	...	...	6	...	1	...	...	...	...	...	2	2	1	1	3	3	20	
Metropolitan and Great Western Joint.	...	...	...	...	...	...	3	1	...	...	...	...	...	...	...	...	...	...	...	1	3	
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	3	...	6	
Metropolitan District ... ..	1	1	...	4	...	1	...	4	...	...	...	...	...	...	...	...	...	...	...	1	10	
Midland ... ..	1	2	...	4	...	4	...	28	...	...	...	...	...	...	26	3	1	...	13	4	78	
Midland and Great-Western Joint.	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	2	
Midland and South-Western Junction.	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	
Normanton Joint Station ... ..	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	...	2	
North and South Western Junction.	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	
North-Eastern ... ..	...	5	...	5	...	12	2	82	...	...	...	3	...	...	41	1	4	1	14	4	166	
North-Eastern and London and North-Western Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	

\* Killed.

NOTE.—In the above Table the persons killed and injured  
† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September, 1902.

## A. PASSENGERS.

NAME OF COMPANY.	1				2				3		4				5		6				7		Total.	
	From falling between Trains and Platforms.				From falling on to the Platform, Ballast, &c.				From falling off Platforms and being struck or run over by Trains.		Whilst crossing the Line at Stations.				By the closing of Carriage Doors.		From falling out of Carriages during the running of Trains.				By other Accidents			
	(a)		(b)		(a)		(b)				(a)		(b)											
	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	When entering Trains.	When alighting from Trains.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.	Where there is either a Subway or Foot-bridge.	Where there is neither a Subway nor Foot-bridge.		
K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	
ENGLAND AND WALES— <i>cont.</i>																								
North London ... ..	...	6	...	4	...	15	...	37	...	...	1	...	...	...	8	...	...	...	7	1	77			
North Wales and Liverpool	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...			
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1		
Otley and Ilkley Joint ...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
Sheffield and Midland Joint	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
South-Eastern and Chatham	1	3	1	4	...	3	...	44	...	...	1	...	1	...	4	2	4	...	4	6	66			
South-Eastern and Chatham, and London, Brighton, and South Coast Joint.	...	...	...	...	...	...	...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	3		
South Shields, Marsden, and Whitburn.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1		
Stalybridge Joint Station ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
Tottenham and Forest Gate Joint.	...	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	3		
Tottenham and Hampstead Joint.	...	1	...	1	...	1	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	6		
Waterloo and City ... ..	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	6		
West London Extension Joint.	...	...	...	...	...	...	...	5	...	...	...	...	...	...	4	...	...	...	...	...	...	9		
Wigan Junction ... ..	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2		
TOTAL, ENGLAND AND WALES ... ..	8	48	7	55	...	84	7	579	3	6	8	5	7	...	242	16	41	9	130	65	1,190			
SCOTLAND.																								
Caledonian ... ..	3	3	...	3	...	...	...	7	1	...	...	...	...	...	9	3	1	...	1	7	24			
Glasgow and Paisley Joint...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	2	...	2	...	...	...	...	6		
Glasgow and South-Western	...	...	2	2	...	1	...	2	...	1	...	...	...	...	2	...	2	...	...	2	10			
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	3		
Glasgow District Subway ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1		
Highland ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	3		
North British ... ..	2	...	...	2	...	...	...	10	...	...	1	...	...	...	7	1	4	1	4	5	27			
TOTAL, SCOTLAND ...	5	5	2	8	...	2	...	21	1	1	1	...	...	...	21	4	11	1	5	14	74			
IRELAND.																								
Belfast and Northern Coun- ties.	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	3		
Clogher Valley ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...			
Cork and Macroom Direct ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1		
Donegal ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1		
Dublin Wicklow and Wex- ford.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1		
Great Northern ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	1		
Great Southern and Western	1	...	...	...	...	1	1	...	...	...	...	...	...	...	3	...	...	...	2	2	6			
TOTAL, IRELAND ...	1	3	...	...	...	1	1	...	1	...	...	...	1	...	3	1	...	1	4	4	13			
TOTAL, UNITED KINGDOM...	14	56	9	63	...	86	8	601	4	8	9	5	7	1	266	21	52	11	139	83	1,277			

are entered against the Company on whose line the injury was received.

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Nine Months

## B. SERVANTS of COMPANIES and CONTRACTORS.

NAME OF COMPANY,	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	Whilst coupling or uncoupling Vehicles.	By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.	Whilst passing over, under, or standing upon, Buffers.	When getting on or off, or falling off, Engines, Waggon, &c.	Whilst braking, spragging, or chocking Wheels.	Whilst attending to Ground Points.	Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.	By other Accidents not included in the preceding.												
	K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
ENGLAND AND WALES.																				
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ...	1	2	...	...	...	1	...	4	...	5	...	1	...	...	...	3	...	...	...	1
Brecon and Merthyr ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Cambrian ...	...	2	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...
Carlisle Joint Station ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Central London ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ...	...	3	...	...	...	...	1	1	4	...	...	...	1	1	2	...	...	...	...	...
Cleator and Workington Junction ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
East and West Yorkshire Union ...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Furness ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	2	...	...	...	...	...
Great Central ...	...	8	...	...	...	...	4	...	10	...	6	...	3	...	12	...	...	...	...	7
Great Eastern ...	1	23	...	...	...	...	4	...	12	...	1	...	28	1	13	...	3	...	...	9
Great Northern ...	...	21	...	1	...	...	9	1	17	...	4	1	15	2	11	...	1	...	...	19
Great Northern and Great Eastern Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Great Western ...	...	28	...	...	...	1	10	...	27	...	2	1	20	...	35	...	4	1	...	21
Hull, Barnsley, and West Riding Junction.	...	2	...	...	...	...	1	...	...	...	...	...	1	...	1	...	...	...	...	1
Lancashire and Yorkshire ...	2	28	...	...	...	1	5	1	15	...	3	1	32	5	21	1	3	...	...	9
Lancashire and Yorkshire and London and North-Western Joint.	...	3	...	...	...	...	...	...	2	...	1	...	8	...	1	...	...	...	...	...
Lancashire, Derbyshire and East Coast.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Lee-on-the-Solent ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued*.RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September 1902—*continued*.

## B. SERVANTS of COMPANIES and CONTRACTORS.

11.		12.		13.		14.		15.				16.		17.		18.		19.	
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous	
								(a.) At Stations.		(b.) At other Parts of the Line.									
K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...
...	1	...	2	...	1	...	...	...	2	...	...	...	...	...	...	2	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	2	...	...	...	...	1	...	...	...	...	...	...	...	...	...	2	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	1
...	...	...	...	3	1	...	...	...	1	...	1	...	...	1	...	...	1	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...
1	5	...	3	2	4	...	...	3	...	...	1	3	1	...	1	1	...	1	9
...	3	...	20	...	12	...	...	1	6	...	3	2	4	...	1	...	2	2	14
...	6	...	10	3	6	...	...	3	7	1	1	...	6	2	2	2	...	1	8
...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	4	...	20	3	6	...	...	5	15	8	3	2	3	...	2	5	3	...	24
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...
1	2	...	19	8	11	...	...	4	10	4	3	2	2	...	6	2	3	6	24
...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	1	...	...	...	2
...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

\* Killed.

† Injured.



NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Nine Months

B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES—cont.																				
Liverpool Overhead ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and North-Western ... ..	1	63	...	2	...	...	1	20	2	65	...	13	1	60	5	88	1	4	2	21
London and North-Western and Great Western Joint.	...	...	...	...	...	...	...	3	...	1	...	1	...	1	...	4	...	...	...	...
London and North-Western and Midland Joint.	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western ... ..	...	18	...	...	...	1	1	8	...	4	...	...	...	8	...	10	...	4	...	10
London, Brighton, and South Coast	1	8	...	...	...	...	1	1	1	9	...	...	...	6	...	7	1	3	...	2
London, Tilbury, and Southend ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Manchester and Milford ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Manchester Ship Canal ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...
Metropolitan ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	1
Metropolitan and Great Western Joint	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ... ..	...	2	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Midland ... ..	1	31	...	...	...	1	...	14	...	18	...	7	...	25	2	29	...	4	...	32
Midland and Great Northern Joint	...	1	...	...	...	...	...	1	...	...	...	1	...	2	...	1	...	...	...	1
Midland and Great Western Joint ...	...	2	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...
Midland and Lancashire and Yorkshire Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Midland and South-Western Junction	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Neath and Brecon ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Normanton Joint Station ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	6	...	1	...	...	...	...
North-Eastern ... ..	...	24	...	2	...	2	...	13	...	19	...	8	2	13	4	24	1	4	...	15
North London ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	1	...	1	...	3
North Staffordshire ... ..	...	2	...	...	...	...	...	2	...	3	...	...	...	...	...	1	...	...	...	...
Nottingham Joint Station ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Port Talbot ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...
Rhondda and Swansea Bay ... ..	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Rhymney ... ..	...	2	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Severn and Wye Joint... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Sheffield and Midland Joint ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Somerset and Dorset Joint ... ..	...	...	...	...	...	...	...	1	...	2	...	...	...	...	...	...	...	...	...	...
South-Eastern and Chatham .. ..	...	9	...	1	...	...	...	5	...	2	...	2	1	4	3	1	...	2	...	3
Taff Vale ... ..	...	3	...	...	...	...	...	3	...	10	...	1	...	...	...	8	...	1	...	...

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—*continued.*RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September 1902—*continued.*B. SERVANTS of COMPANIES and CONTRACTORS—*continued.*

11.		12.		13.		14.		15.				16.		17.		18.		19.		TOTAL.	
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.			
								(a.) At Stations.		(b.) At other Parts of the Line.											
K.*	L†	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.	K.	L.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
1	3	1	77	1	13	...	...	13	28	5	4	4	11	...	2	3	3	1	59	42	536
...	...	...	...	...	...	...	...	1	1	1	...	...	1	...	...	...	...	...	3	2	15
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	4
...	...	...	4	4	3	...	...	5	6	...	...	2	4	...	4	2	1	2	6	16	91
...	1	...	1	6	5	...	...	3	8	...	1	3	...	...	2	...	1	...	6	16	61
...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	1	...	1	3	4
...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1	4	3	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	9
...	6	...	41	7	5	...	...	9	14	2	5	2	9	...	2	2	2	4	34	29	279
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	10
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	10
...	4	...	16	4	3	...	...	7	11	1	1	...	5	...	4	2	3	3	30	24	201
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	1	...	5	1	14
...	...	...	1	...	...	...	...	2	2	...	...	...	1	...	...	1	...	...	2	3	14
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	5
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	1	...	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	6
1	7	...	3	5	6	1	...	2	11	2	3	1	1	1	7	1	1	...	10	18	78
...	...	...	6	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	4	...	38

\* Killed.

† Injured.

## NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING

TABLE No. 5—continued.

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several during the Nine Months

## B. SERVANTS of COMPANIES and CONTRACTORS—continued.

NAME OF COMPANY.	BY ACCIDENTS OCCURRING DURING SHUNTING OPERATIONS.																9.		10.	
	1.		2.		3.		4.		5.		6.		7.		8.					
	Whilst coupling or uncoupling Vehicles.		By coming in contact whilst riding on Vehicles with other Vehicles, &c., standing on adjacent Lines.		Whilst passing over, under, or standing upon, Buffers.		When getting on or off, or falling off, Engines, Waggon, &c.		Whilst braking, spragging, or chocking Wheels.		Whilst attending to Ground Points.		Whilst moving Vehicles by Capstans, Turntables, Props, Levers, &c.		By other Accidents not included in the preceding.		By falling off Trains, Engines, &c., in Motion.		When getting on or off Engines, Vans, &c., during the running of Trains.	
	K.*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
ENGLAND AND WALES—cont.																				
Tottenham and Hampstead Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Railway Clearing House ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES ...	8	312	...	7	...	6	5	114	6	280	...	51	7	239	23	283	5	35	3	160
SCOTLAND.																				
Caledonian ...	...	18	...	1	2	4	...	13	1	14	...	5	...	4	3	7	1	5	...	3
Dumbarton and Balloch Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Dundee and Arbroath Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...
Glasgow and Paisley Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow and South-Western ...	1	2	...	...	...	...	...	1	...	...	...	1	...	...	...	1	...	1	...	...
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Great North of Scotland ...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...
Highland ...	...	2	...	...	...	...	1	1	...	1	...	...	1	...	...	...	2	...	2	...
North British ...	1	21	...	...	...	2	...	7	...	12	1	4	1	10	2	21	...	2	...	13
Railway Clearing House ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	2	44	...	2	2	6	1	22	1	27	1	10	2	15	7	32	2	10	...	18
IRELAND.																				
Belfast and County Down ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties ...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	1	...	...	...	...	1
Cavan and Leitrim ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Clogher Valley ...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Cork and Muskerry Light ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cork, Bandon and South Coast ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dundalk, Newry, and Greenore ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern ...	1	...	...	...	...	1	...	...	...	1	...	...	...	3	...	2	...	...	...	...
Great Southern and Western ...	1	1	...	...	...	...	...	...	...	...	...	...	...	4	...	3	...	1	...	2
Midland Great Western ...	...	5	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...
Sligo, Leitrim, and Northern Counties ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
TOTAL IRELAND ...	2	7	...	...	...	1	...	...	...	1	...	1	...	10	1	8	...	1	...	3
TOTAL, UNITED KINGDOM ...	12	363	...	9	2	13	6	136	7	258	1	62	9	264	31	323	7	46	3	181

\* Killed.

† Injured.

## OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 5—continued.

RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES ending 30th September 1902—continued.

## B. SERVANTS of COMPANIES and CONTRACTORS—continued.

11.		12.		13.		14.		15.				16.		17.		18.		19.			
By coming in contact with Over-bridges or Erections on the Sides of the Line.		Whilst attending to the Machinery, &c., of Engines in Motion.		Whilst working on the Permanent-Way, Sidings, &c.		Whilst attending to Gates at Level Crossings.		Whilst walking, crossing, or standing on the Line on Duty.				From being caught between Vehicles.		From falling or being caught between Trains and Platforms, Walls, &c.		Whilst walking, &c., along the Line to or from Work.		Miscellaneous.		TOTAL.	
								(a.)		(b.)											
At Stations.		At other Parts of the Line.																			
K*	L†	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L	K.	L
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
5	46	1	228	48	79	2	...	60	126	27	27	22	56	4	41	23	24	23	265	272	2,329
1	3	...	6	8	9	...	...	3	8	1	5	1	5	...	2	...	3	3	13	24	128
...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
...	1	...	1	2	1	...	...	3	1	...	...	...	3	1	...	...	...	...	2	7	15
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	...	1	...	1	...	...	...	1	...	1	...	1	9	9
...	...	...	1	...	...	...	...	...	2	...	...	...	...	...	1	...	...	...	1	13	13
...	2	...	12	7	4	1	...	2	10	1	5	3	6	...	3	2	1	3	14	24	149
...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
1	6	...	21	18	14	1	...	9	23	2	11	4	14	1	7	2	5	6	29	62	316
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	1	1
...	2	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	1	1	9
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	1
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	...	...	1	...	...	...	...	1	1	...	...	...	1	...	...	...	...	...	2	10	10
...	2	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	4	3	17
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
...	5	...	2	...	...	...	...	2	2	...	...	...	1	2	1	1	...	1	6	9	49
6	57	1	251	66	93	3	...	71	151	29	38	26	71	7	49	26	29	30	300	343	2,694

\* Killed.

† Injured.



**NUMBER OF PERSONS KILLED OR INJURED BY THE RUNNING OF TRAINS OR THE MOVEMENT OF RAILWAY VEHICLES.**

**TABLE No. 5—continued.**

NUMBER of PERSONS reported to the BOARD OF TRADE as having been KILLED or INJURED upon the several RAILWAYS in the UNITED KINGDOM from the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September 1902—continued.

**C. OTHER PERSONS—continued.**

NAME OF COMPANY.	LEVEL CROSSINGS.								Tres- passers.		Suicides and attempted Suicides.		Persons on Business at Sidings and Stations.		Miscel- laneous.		GRAND TOTAL.	
	Public.		Occupation.		Foot.		TOTAL.											
	K.*	I.†	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.	K.	I.
ENGLAND AND WALES—cont.																		
Midland and Great Northern Joint.	1	...	...	...	...	...	1	...	1	..	...	...	...	...	...	1	2	1
Midland and Great Western Joint.	...	..	...	...	...	...	...	...	...	1	2	...	...	...	...	...	2	1
Neath and Brecon ...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...
North-Eastern ...	4	3	1	...	...	...	5	3	27	13	4	1	...	3	...	1	36	21
North London ...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	2	...
North Staffordshire ...	...	...	...	...	...	...	...	...	1	2	3	...	...	...	...	...	4	2
Rhondda and Swansea Bay	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
Rhymney ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Rhymney and Great West- ern Joint.	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	1	1
Severn and Wye Joint ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1
Sheffield and Midland Joint	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Somerset and Dorset Joint	1	2	...	...	...	...	1	2	...	...	1	...	...	...	...	...	2	2
South-Eastern and Chat- ham.	2	...	1	...	...	...	2	1	4	1	11	...	1	3	...	1	19	5
Swansea and Mumbles ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Taff Vale ...	...	1	...	1	...	...	1	1	...	...	1	...	...	...	...	...	1	2
Tottenham and Hampstead Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
TOTAL, ENGLAND AND } WALES ... }	14	12	13	1	8	2	35	15	144	68	88	12	11	55	9	21	287	171
SCOTLAND.																		
Caledonian ...	...	...	...	...	...	...	...	...	21	13	3	...	1	1	2	1	27	15
Dundee and Arbroath Joint	...	...	1	1	...	...	1	1	1	...	2	...	...	...	...	...	4	1
Glasgow and South-Western	...	...	...	...	...	...	...	...	5	3	2	1	...	...	1	1	8	5
Glasgow, Barrhead, and Kilmarnock Joint.	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	1	1
Great North of Scotland ...	...	...	...	...	...	...	...	...	1	1	1	...	1	...	...	...	3	1
Highland ...	...	...	...	1	...	...	...	1	2	...	...	...	...	...	...	...	2	1
North British ...	...	...	...	...	...	...	...	...	14	9	6	...	...	4	1	4	21	17
Perth General Station ...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
Portpatrick and Wigton- shire Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...
TOTAL, SCOTLAND ...	...	...	1	2	...	...	1	2	45	27	16	1	2	5	4	6	68	41
IRELAND.																		
Belfast and County Down	...	...	1	...	...	...	1	...	...	...	1	...	...	...	...	...	2	...
Belfast and Northern Counties.	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2
Cavan and Leitrim ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3
Cork, Bandon, and South Coast.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Donegal ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Dundalk, Newry, and Greenore.	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...
Great Northern ...	...	...	...	...	...	...	...	...	3	2	...	...	...	...	...	...	3	2
Great Southern and Western	...	...	1	...	...	...	1	...	6	1	...	...	...	1	...	2	7	4
Londonderry and Lough Swilly.	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	2	...
Midland Great Western ...	...	...	...	...	...	...	...	...	3	2	...	...	...	...	...	...	3	2
West Clare ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
TOTAL, IRELAND ...	1	...	2	...	...	...	3	...	15	7	2	...	1	1	...	5	21	13
TOTAL, UNITED KING- DOM ... }	15	12	16	3	8	2	39	17	204	102	106	13	14	61	13	32	376	225

\* Killed.

† Injured.

NATURE OF INJURIES TO PERSONS FROM ACCIDENTS TO TRAINS AND FROM THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 6.

NUMBER of PASSENGERS, SERVANTS of the COMPANIES and of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE by RAILWAY COMPANIES as having been KILLED or INJURED in the UNITED KINGDOM, in ACCIDENTS to TRAINS and by the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September 1902, classified according to the NATURE of the INJURIES; with figures for the corresponding period of 1901.

		NATURE OF INJURIES.																Total Injured		
		Fatal	Injuries resulting in Loss of			Fractures of				Dislocations.	Internal Injuries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shock to System.		Miscellaneous Injuries.	
			Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
																				1.
<b>Passengers :</b>																				
1902	... ..	88	11	3	...	8	45	6	3	11	21	187	347	...	37	244	235	726	1,884	
1901	... ..	84	7	2	2	4	30	9	7	7	9	115	321	1	36	273	152	467	1,442	
<b>Servants of the Companies and Contractors :</b>																				
1902	... ..	345	37	15	17	9	68	62	21	26	62	385	735	62	300	254	27	688	2,766	
1901	... ..	351	63	16	18	10	97	66	33	28	81	302	777	76	361	309	30	840	3,107	
<b>Other Persons :</b>																				
Persons having business at stations	1902	14	1	...	1	...	5	1	3	1	3	9	20	...	...	2	2	13	61	
	1901	14	1	3	1	...	4	2	1	...	...	11	21	1	4	9	3	27	88	
Trespassers	1902	204	10	8	3	1	9	5	2	...	4	10	19	...	...	9	3	19	102	
	1901	211	12	6	2	2	11	5	1	1	1	13	17	...	...	12	...	31	114	
Others*...	1902	160	5	3	...	2	6	3	...	2	2	15	7	1	...	7	6	12	71	
	1901	161	4	1	2	...	2	...	2	1	2	10	4	...	1	9	2	17	57	
* (Including accidents at level crossings, suicides, and accidents to other persons not coming in any of the above classifications)																				
TOTAL	1902	811	64	29	21	20	133	77	29	40	92	606	1,128	63	337	516	273	1,458	4,886	
	1901	821	87	28	25	16	144	82	44	37	93	451	1,140	78	402	612	187	1,382	4,808	

**NATURE OF ORDINARY EMPLOYMENT OF SERVANTS OF THE COMPANIES KILLED OR INJURED IN ACCIDENTS TO TRAINS, AND BY THE MOVEMENT OF RAILWAY VEHICLES.**

TABLE No. 7.

STATEMENT showing the NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported to the BOARD of TRADE as having been KILLED or INJURED in ACCIDENTS to TRAINS, and by the RUNNING of TRAINS or the MOVEMENT of RAILWAY VEHICLES during the Nine Months ending 30th September 1902, classified according to the NATURE of the EMPLOYMENT and AGE of the persons injured, and the NATURE of the INJURIES; and also the total number of Persons employed in each Class of Service.

NATURE OF EMPLOYMENT.	NATURE OF INJURIES.																	Total Injured.	Number of Persons Employed in 1901.
	Fatal.	Injuries resulting in loss of			Fractures of				Dis-locations.	In-ternal In-juries.	Contusions of		Scalds or Burns.	Sprains.	Cuts or Lacerations.	Shocks to Sys-tem.	Miscellane-ous In-juries.		
		Legs or Feet.	Arms or Hands.	Fingers or Toes.	Skull.	Legs or Arms.	Collar Bones or Ribs.	Other Bones.			Head or Body.	Limbs.							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17		
1. Brakesmen. (See Goods Guards.)																			
2. Capstanmen and Capstan-lads: (1) Men	...	...	...	1	...	1	...	...	...	1	6	20	...	4	5	1	19	58	1,052
(2) Boys	...	...	...	...	...	...	1	...	...	...	1	3	...	...	...	1	3	9	204
3. Carmen and Van-guards: (1) Men	...	...	...	...	1	2	...	...	...	...	...	3	...	...	...	...	1	7	16,819
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6,711
4. Carriage Cleaners: (1) Men	7	...	...	...	...	1	1	...	...	2	7	1	...	...	5	...	4	21	5,084
(2) Boys	2	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	297
5. Carriage and Wag-gon Examiners.	6	...	...	...	...	...	...	...	...	...	2	2	...	1	3	...	2	10	3,454
6. Checkers: (1) Men	1	...	...	...	...	2	...	...	...	1	1	1	...	1	...	...	2	8	7,792
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	179
7. Chockers, Chain-boys, and Slippers: (1) Men	...	...	...	...	...	...	...	1	...	...	3	7	...	3	2	...	3	19	96
(2) Boys	1	...	...	...	...	...	...	...	...	...	3	12	...	2	3	...	7	27	640
8. Clerks: (1) Men	...	2	...	1	...	...	...	...	...	...	2	1	...	...	...	...	1	7	48,245
(2) Boys	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	13,565
9. Engine Cleaners: (1) Men...	6	...	1	2	...	2	1	3	...	1	11	20	6	1	3	...	10	61	15,250
(2) Boys	3	...	...	...	...	...	...	...	1	...	1	3	...	1	...	...	2	8	3,993
10. Engine Drivers	14	...	...	...	...	3	3	...	...	8	33	37	23	21	25	3	58	214	25,556
11. Firemen	18	4	2	4	1	5	3	4	4	11	25	81	25	21	52	3	94	340	24,083
12. Gatekeepers	3	...	...	...	...	...	2	...	...	...	1	1	...	...	...	...	...	4	3,507
13. Greasers: (1) Men	2	...	1	...	...	...	1	...	...	...	1	3	...	2	2	...	...	10	964
(2) Boys	3	2	1	...	...	1	...	...	...	...	1	2	...	...	2	...	2	11	841
14. Guards (Goods) and Brakesmen.	29	4	...	1	...	9	5	2	5	7	74	162	...	87	49	9	160	574	15,708
15. Guards, Passenger	2	...	...	...	2	4	2	1	3	2	15	13	...	16	12	3	19	92	7,291
16. Horse Drivers	6	...	...	...	...	1	2	...	1	...	4	36	...	5	...	...	14	63	2,272
17. Inspectors: (1) Permanent-way	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1	1,071
(2) Others	4	2	...	...	...	...	...	...	...	...	2	6	...	5	...	...	5	20	5,701
18. Labourers: (1) Men	27	2	1	...	1	4	11	1	...	3	15	21	...	3	6	1	23	92	52,383
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	899
19. Lampmen and Lamp-lads: (1) Men	3	1	...	...	...	...	...	...	...	...	1	2	...	...	...	1	3	8	1,813
(2) Boys	4	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	2	472
20. Loaders and Sheeters	4	...	...	...	...	1	...	...	...	2	5	2	...	...	...	...	7	17	4,480
21. Mechanics: (1) Men	11	2	...	1	...	...	2	...	1	2	8	5	...	...	3	...	4	23	70,922
(2) Boys	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	10,518
22. Messengers: (1) Men	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	652
(2) Boys	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	2,642
23. Number Takers: (1) Men...	1	...	1	...	...	...	...	...	...	...	3	2	...	1	...	...	2	9	823
(2) Boys	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	2	4	745
24. Permanent-way Men	77	4	...	1	...	6	6	2	1	...	23	17	...	3	8	...	26	97	66,621
25. Pointsmen	...	...	...	...	...	...	2	...	...	...	5	3	...	1	1	...	4	16	773
26. Policemen	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1,998
27. Porters: (1) Men...	32	3	1	1	3	10	6	1	3	12	54	112	2	22	34	1	74	339	50,134
(2) Boys...	5	...	...	...	...	1	...	1	...	1	2	7	...	1	...	...	3	16	5,142
28. Shunters	28	7	5	2	...	6	7	1	7	7	40	111	5	33	25	3	103	412	10,841
29. Signal Fitters and Telegraph Wiremen.	2	...	...	...	...	...	...	...	...	...	2	2	...	...	1	...	...	5	3,843
30. Signalmen	5	...	1	...	...	3	2	...	...	...	7	5	...	2	2	...	9	31	27,723
31. Signal Box Lads	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,079
32. Station Masters	2	...	...	1	...	...	...	...	...	...	2	...	...	...	1	...	...	4	8,103
33. Ticket Collectors and Examiners.	1	...	...	...	...	...	1	...	...	...	2	2	...	3	...	1	1	10	3,642
34. Watchmen	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	993
35. Yardmen	4	1	...	1	...	1	...	2	...	...	6	3	...	3	1	...	3	21	1,717
36. Miscellaneous: (1) Adults	14	...	1	1	1	2	1	1	...	2	12	21	1	5	7	...	15	70	32,723
(2) Boys	1	1	...	...	...	...	1	...	...	...	...	2	...	...	1	...	...	5	2,828
Total of Railway Servants.	333	35	15	17	9	66	61	21	26	62	333	732	62	299	253	27	687	2,755	575,834
37. Contractors' Servants: (1) Men...	12	2	...	...	...	2	1	...	...	...	2	3	...	1	1	...	1	13	
(2) Boys	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total of Contractors' Servants.	12	2	...	...	...	2	1	...	...	...	2	3	...	1	1	...	1	13	
Total of Railway and Contractors' Servants.	345	37	15	17	9	68	62	21	26	62	335	735	62	300	254	27	688	2,768	



## NUMBER OF PERSONS KILLED OR INJURED ON RAILWAY PREMISES OTHERWISE

TABLE No. 8.

SUMMARY STATEMENT OF THE NUMBER of PASSENGERS, SERVANTS of the COMPANIES and KILLED or INJURED, in each DIVISION of the UNITED KINGDOM, otherwise than in ACCIDENTS COMPANIES during the Nine Months ending 30th September 1902, with corresponding figures

	1902.					
	ENGLAND AND WALES.		SCOTLAND.		IRELAND.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>PASSENGERS :—</b>						
1. Whilst ascending or descending steps at stations	5	211	...	6	...	...
2. By being struck by barrows, by falling over packages, &c., on station platforms.	...	58	...	1	...	...
3. From falling off platforms on to the ballast ...	2	57	1	2	...	...
4. By other accidents ... ..	1	117	...	3	...	1
<b>TOTAL OF PASSENGERS ... ..</b>	<b>8</b>	<b>443</b>	<b>1</b>	<b>12</b>	<b>...</b>	<b>1</b>
<b>SERVANTS :—</b>						
1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes.	3	1,139	1	62	...	17
2. Whilst moving goods and luggage in stations or sheds.	1	432	...	20	...	3
3. Whilst working at cranes or capstans ... ..	...	132	1	7	...	2
4. By the falling of waggon-doors, lamps, bales of goods, &c.	...	377	...	25	...	5
5. Whilst attending to engines at rest ... ..	...	374	...	44	...	23
6. From falling off, or when getting on or off engines or vehicles at rest.	1	640	...	44	...	14
7. From falling off, or when getting on or off, platforms.	...	154	...	5	...	1
8. From falling off ladders, scaffolds, &c. ... ..	6	201	...	16	...	3
9. By stumbling whilst walking on the line ...	1	458	...	12	...	6
10. By being trampled on or kicked by horses whilst engaged in railway work.	...	37	...	1	...	...
11. From being struck by articles thrown from passing trains.	...	4	...	...	...	2
12. From the falling of rails, sleepers, &c., when at work on the line.	1	441	...	24	...	18
13. Otherwise injured when at work on the line or in sidings.	4	800	2	18	...	23
14. Miscellaneous ... ..	7	1,277	2	63	...	22
<b>TOTAL OF SERVANTS ... ..</b>	<b>24</b>	<b>6,866</b>	<b>6</b>	<b>341</b>	<b>...</b>	<b>139</b>
<b>OTHER PERSONS :—</b>						
On business at stations and sidings ... ..	10	222	2	14	...	6
Miscellaneous ... ..	9	68	3	11	...	1
<b>TOTAL OF OTHER PERSONS ... ..</b>	<b>19</b>	<b>290</b>	<b>5</b>	<b>25</b>	<b>...</b>	<b>7</b>
<b>GRAND TOTAL ... ..</b>	<b>51</b>	<b>7,599</b>	<b>12</b>	<b>378</b>	<b>...</b>	<b>147</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, sidings, goods yards, and all other premises warehousing goods, repairing sheds,

THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 8.

of CONTRACTORS, and OTHER PERSONS reported to the BOARD OF TRADE as having been to TRAINS or by the MOVEMENT of RAILWAY VEHICLES, on the PREMISES\* of the RAILWAY for the UNITED KINGDOM for the Nine Months ending 30th September 1901.

1902.		1901.		
UNITED KINGDOM.		UNITED KINGDOM.		
Killed.	Injured.	Killed.	Injured.	
5	217	10	209	<b>PASSENGERS :—</b>  1. Whilst ascending or descending steps at stations. 2. By being struck by barrows, by falling over packages, &c., on station platforms. 3. From falling off platforms on to the ballast. 4. By other accidents.
...	59	...	77	
3	59	3	62	
1	121	3	132	
9	456	16	480	<b>TOTAL OF PASSENGERS.</b>
4	1,318	5	1,377	<b>SERVANTS :—</b>  1. Whilst loading, unloading, or sheeting waggons, trucks, and horse-boxes. 2. Whilst moving goods and luggage in stations or sheds. 3. Whilst working at cranes or capstans. 4. By the falling of waggon-doors, lamps, bales of goods, &c. 5. Whilst attending to engines at rest. 6. From falling off, or when getting on or off engines or vehicles at rest. 7. From falling off, or when getting on or off, platforms. 8. From falling off ladders, scaffolds, &c. 9. By stumbling whilst walking on the line. 10. By being trampled on or kicked by horses whilst engaged in railway work. 11. From being struck by articles thrown from passing trains. 12. From the falling of rails, sleepers, &c., when at work on the line. 13. Otherwise injured when at work on the line or in sidings. 14. Miscellaneous.
1	455	1	385	
1	141	2	158	
...	307	...	427	
...	941	1	991	
1	698	1	593	
...	160	...	160	
6	220	13	268	
1	476	...	480	
...	38	1	50	
...	6	...	10	
1	483	1	572	
6	841	4	830	
9	1,362	10	1,262	
30	7,346	39	7,563	<b>TOTAL OF SERVANTS.</b>
12	242	9	248	<b>OTHER PERSONS :—</b>  On business at stations and sidings. Miscellaneous.
12	80	13	82	
24	322	22	330	<b>TOTAL OF OTHER PERSONS.</b>
63	8,124	77	8,373	<b>GRAND TOTAL.</b>

used for the purpose of working the railway, but does not include factories, workshops, buildings used exclusively for stables, hotels, and other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Whilst loading, unloading, or sheeting Waggon.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst working at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off, or when getting on or off Platforms.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
<b>ENGLAND AND WALES.</b>														
Alexandra (Newport) Dock ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Barry ... ..	...	3	...	...	...	...	...	...	...	1	...	1	...	...
Brecon and Merthyr ... ..	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Cambrian ... ..	...	2	...	1	...	1	...	2	...	3	...	1	...	...
Central London ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	...	5	...	...	...	2	...	1	...	...	...	1	...	...
City and South London ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cookermouth, Keswick, and Penrith.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colne Valley and Halstead ... ..	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Furness ... ..	...	3	...	1	...	1	...	...	...	1	...	4	...	1
Great Central .. ..	...	41	...	19	...	9	...	4	...	4	...	21	...	2
Great Eastern ... ..	...	88	1	36	...	3	...	25	...	82	...	37	...	14
Great Northern ... ..	...	62	...	35	...	4	...	24	...	10	...	39	...	12
Great Western ... ..	...	115	...	18	...	6	...	19	...	83	...	57	...	22
Hull, Barnsley, and West Riding Junction.	...	2	...	...	...	...	...	1	...	5	...	2	...	...
Lambourne Valley... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire ... ..	1	164	...	53	...	16	...	24	...	129	...	57	...	6
Lancashire and Yorkshire and London and North-Western Joint.	...	6	...	3	...	1	...	4	...	3	...	...	...	2
Lancashire, Derbyshire and East Coast.	...	2	...	...	...	...	...	...	...	2	...	...	...	1
London and North-Western ... ..	...	264	...	66	...	30	...	56	...	307	1	164	...	32
London and North-Western and Furness Joint.	...	...	...	1	...	...	...	...	...	...	...	...	...	...
London and North-Western and Great Western Joint.	...	16	...	2	...	1	...	3	...	...	...	2	...	3
London and North-Western and Midland Joint.	...	...	...	4	...	...	...	...	...	...	...	1	...	...
London and North Western and North Staffordshire Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...	...
London and South-Western ... ..	...	57	...	29	...	7	...	14	...	36	...	23	...	8

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Nine Months ending 30th September 1902.

8 From falling off Ladders, Scaffolds, &c.		9 By stumbling whilst walking on the Line.		10 By being trampled on or kicked by Horses whilst engaged in Railway Work.		11 By being struck by Articles thrown from passing Trains.		12 By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		13 Otherwise Injured when at Work on the Line or in Sidings.		14 Miscel- laneous.		Total.		NAME OF COMPANY.
Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	ENGLAND AND WALES.
...	...	...	1	...	...	...	...	...	5	...	8	...	4	...	23	Alexandra (Newport) Dock.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Barry.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Brecon and Merthyr.
...	...	...	2	...	...	...	...	...	2	...	2	...	5	...	21	Cambrian.
...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	3	Central London.
...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	11	Cheshire Lines.
...	1	...	...	...	...	...	...	...	...	...	...	1	...	1	1	City and South London.
...	...	...	2	...	...	...	...	...	1	...	...	...	1	...	4	Cockermouth, Keswick, and Penrith.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Colne Valley and Hal- stead.
...	...	...	3	...	...	...	...	...	2	...	...	...	6	...	22	Furness.
...	4	...	6	...	3	...	...	...	5	...	12	...	17	...	147	Great Central.
1	18	...	51	...	7	...	1	...	98	1	111	...	151	3	662	Great Eastern.
...	8	...	21	...	1	...	...	...	39	...	52	3	116	3	483	Great Northern.
1	30	...	33	...	...	...	...	...	58	...	88	...	101	1	630	Great Western.
...	...	...	...	...	...	...	...	...	...	...	2	...	1	...	13	Hull, Barnaley, and West Riding Junction.
...	...	...	1	...	...	...	...	...	...	...	1	...	...	...	2	Lambourne Valley.
1	19	...	21	...	...	...	...	...	24	1	21	2	88	5	622	Lancashire and York- shire.
...	1	...	4	...	...	...	...	...	...	...	...	...	1	...	25	Lancashire and Yorkshire and London and North- Western Joint.
...	...	...	1	...	...	...	...	...	1	...	2	...	1	...	10	Lancashire, Derbyshire and East Coast.
...	45	...	124	...	1	...	...	...	129	...	241	...	314	1	1,773	London and North- Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	London and North-West- ern and Furness Joint.
...	4	...	3	...	...	...	...	...	12	...	20	...	14	...	80	London and North- Western and Great Western Joint.
...	1	...	1	...	...	...	...	...	...	...	...	...	3	...	10	London and North- Western and Midland Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	London and North- Western and North Staffordshire Joint.
...	13	...	23	...	2	...	1	...	16	1	28	1	46	2	303	London and South- Western.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—*continued.*

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY  
otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1		2		3		4		5		6		7	
	Whilst loading, unloading, or sheeting Waggons.		Whilst moving Goods and Luggage in Stations or Sheds.		Whilst work- ing at Cranes or Capstans.		By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		Whilst attending to Engines at rest.		From falling off, or when getting on or off Engines or Vehicles at rest.		From falling off or when getting on or off Platforms.	
	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.
ENGLAND AND WALES— <i>cont.</i>														
London and South-Western and London, Brighton, and South Coast Joint.	...	...	...	2	...	...	...	...	...	...	...	1	...	...
London, Brighton, and South Coast.	1	23	...	...	...	3	...	6	...	11	...	9	...	1
London, Tilbury and Southend ...	...	...	...	1	...	1	...	...	...	...	...	2	...	...
Macclesfield Joint Station	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Mersey ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ... ..	...	3	...	2	...	...	...	...	...	2	...	2	...	2
Metropolitan and Great Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan District ... ..	...	...	...	2	...	1	...	1	...	1	...	...	...	2
Midland ... ..	...	174	...	60	...	20	...	47	...	85	...	114	...	23
Midland and Great Northern Joint.	...	9	...	2	...	2	...	3	...	4	...	2	...	...
Midland and Great Western Joint	...	...	...	2	...	...	...	2	...	...	...	...	...	...
Midland and Lancashire and Yorkshire Joint.	...	1	...	...	...	1	...	...	...	...	...	...	...	...
Midland and South-Western Junction.	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Neath and Brecon ... ..	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Normanton Joint Station	...	1	...	1	...	...	...	1	...	...	...	2	...	...
North-Eastern ... ..	...	59	...	25	...	13	...	15	...	50	...	53	...	8
North-Eastern and London and North-Western Joint.	...	1	...	...	...	...	...	1	...	...	...	...	...	...
North London ... ..	...	1	...	2	...	...	...	2	...	1	...	3	...	5
North Staffordshire ... ..	...	2	...	1	...	...	...	1	...	2	...	4	...	...
North Wales and Liverpool	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Nottingham Joint Station	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Oldham, Ashton-under-Lyne, and Guide Bridge Junction.	...	3	...	...	...	...	...	...	...	...	...	...	...	...
Otley and Ilkley Joint ... ..	...	...	...	1	...	...	...	...	...	...	...	...	...	...

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the  
sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE No. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Nine Months ending 30th September 1902.

8		9		10		11		12		13		14		Total.		NAME OF COMPANY.
From falling off Ladders, Scaffolds, &c.		By stumbling whilst walking on the Line.		By being trampled on or kicked by Horses whilst engaged in Railway Work.		By being struck by Articles thrown from passing Trains.		By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		Otherwise Injured when at Work on the Line or in Sidings.		Miscellaneous.				
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	ENGLAND AND WALES— <i>cont.</i>
1	3	...	2	...	...	...	1	...	9	...	7	...	10	2	85	London and South-Western and London, Brighton, and South Coast Jt. London, Brighton, and South Coast.
...	2	...	...	...	...	...	...	...	...	...	...	...	1	...	7	London, Tilbury and Southend.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Macclesfield Joint Station.
...	1	...	...	...	...	...	...	...	...	...	...	...	2	...	8	Mersey.
...	1	...	4	...	...	...	...	...	3	...	4	...	7	...	30	Metropolitan.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Metropolitan and Great Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	Metropolitan and Metropolitan District Joint.
...	1	...	2	...	...	...	...	...	1	...	1	...	1	...	13	Metropolitan District.
...	17	...	72	...	17	...	...	...	41	1	88	...	211	1	969	Midland.
...	...	...	2	...	...	...	...	...	2	...	3	...	6	...	35	Midland and Great Northern Joint.
...	4	...	2	...	...	...	...	...	...	...	...	...	4	...	14	Midland and Great Western Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	3	Midland and Lancashire and Yorkshire Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Midland and South-Western Junction.
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	2	Neath and Brecon.
...	1	...	1	...	3	...	...	...	...	...	1	...	3	...	14	Normanton Joint Station.
...	11	...	49	...	3	...	...	...	33	...	72	...	101	...	492	North-Eastern.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	North - Eastern and London and North-Western Joint.
...	2	...	4	...	...	...	1	...	2	...	8	...	7	...	38	North London.
...	3	...	1	...	...	...	...	1	...	...	3	...	7	1	24	North Staffordshire.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	North Wales and Liverpool.
...	1	...	1	...	...	...	...	...	...	...	...	...	1	...	4	Nottingham Joint Station.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	Oldham, Ashton-under-Lyne, and Guide Bridge Junction.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Otley and Ilkley Joint.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.

## SERVANTS OF THE COMPANIES AND OF CONTRACTORS KILLED OR INJURED OTHERWISE

TABLE No. 9—continued.

NUMBER of SERVANTS of the COMPANIES and of CONTRACTORS reported by the several RAILWAY otherwise than in ACCIDENTS to TRAINS or by the MOVEMENT

NAME OF COMPANY.	1 Whilst loading, unloading, or sheeting Waggons.		2 Whilst moving Goods and Luggage in Stations or Sheds.		3 Whilst work- ing at Cranes or Capstans.		4 By the falling of Waggon Doors, Lamps, Bales of Goods, &c.		5 Whilst attending to Engines at rest.		6 From falling off, or when getting on or off Engines or Vehicles at rest.		7 From falling off or when getting on or off Platforms.	
	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.
<b>ENGLAND AND WALES—cont.</b>														
Rhondda and Swansea Bay ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhymney ... ..	...	...	...	...	...	...	...	1	...	1	...	1	...	...
Severn and Wye Joint ...	...	...	...	...	...	...	...	1	...	1	...	1	...	...
Sheffield and Midland Joint ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint ...	...	3	...	...	...	...	...	1	...	1	...	2	...	...
South-Eastern and Chatham ...	1	15	...	4	...	8	...	3	...	24	...	20	...	7
Stalybridge Joint Station...	...	1	...	...	...	1	...	...	...	...	...	...	...	...
Taff Vale ... ..	...	8	...	9	...	...	...	5	...	22	...	11	...	2
Waterloo and City ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
West London Extension ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay.	...	...	...	...	...	...	...	...	1	...	2	...	...	...
<b>TOTAL, ENGLAND AND WALES</b>	<b>3</b>	<b>1,139</b>	<b>1</b>	<b>432</b>	...	<b>132</b>	...	<b>277</b>	...	<b>874</b>	<b>1</b>	<b>640</b>	...	<b>154</b>
<b>SCOTLAND.</b>														
Caledonian ... ..	...	32	...	9	...	4	...	8	...	21	...	20	...	4
Dumbarton and Balloch Joint ...	...	...	...	1	...	...	...	2	...	...	...	...	...	...
Glasgow and Paisley Joint ...	...	4	...	1	...	...	...	2	...	...	...	1	...	...
Glasgow and South-Western ...	...	8	...	...	...	...	...	...	...	...	...	...	...	...
Glasgow, Barrhead & Kilmarnock Joint.	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Great North of Scotland ...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Highland ... ..	...	3	...	1	...	...	...	2	...	1	...	2	...	...
North British ... ..	1	20	...	8	1	2	...	11	...	21	...	21	...	1
<b>TOTAL, SCOTLAND</b> ... ..	<b>1</b>	<b>62</b>	...	<b>20</b>	<b>1</b>	<b>7</b>	...	<b>25</b>	...	<b>44</b>	...	<b>44</b>	...	<b>5</b>
<b>IRELAND.</b>														
Belfast and County Down ...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Belfast and Northern Counties ...	...	9	...	1	...	2	...	2	...	10	...	2	...	1
Cork, Bandon, and South Coast ...	...	1	...	...	...	...	...	...	...	1	...	...	...	...
Dublin, Wicklow, and Wexford ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
Dundalk, Newry and Greenore ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Northern ... ..	...	...	...	...	...	...	...	...	...	7	...	8	...	...
Great Southern and Western ...	...	5	...	1	...	...	...	1	...	4	...	8	...	...
Midland Great Western ... ..	...	1	...	1	...	...	...	2	...	...	...	1	...	...
<b>TOTAL, IRELAND</b> ... ..	...	<b>17</b>	...	<b>3</b>	...	<b>2</b>	...	<b>5</b>	...	<b>23</b>	...	<b>14</b>	...	<b>1</b>
<b>TOTAL, UNITED KINGDOM...</b>	<b>4</b>	<b>1218</b>	<b>1</b>	<b>455</b>	<b>1</b>	<b>141</b>	...	<b>307</b>	...	<b>941</b>	<b>1</b>	<b>698</b>	...	<b>160</b>

\* NOTE.—The term "Railway Premises" includes stations, permanent-way, goods yards, sidings, and all other premises used for the sheds, stables, hotels, and

## THAN IN ACCIDENTS TO TRAINS OR BY THE MOVEMENT OF RAILWAY VEHICLES.

TABLE NO. 9—continued.

COMPANIES to the BOARD OF TRADE as having been KILLED or INJURED upon their RAILWAY PREMISES\* of RAILWAY VEHICLES, during the Nine Months ending 30th September 1902.

8 From falling off Ladders, Scaffolds, &c.		9 By stumbling whilst walking on the Line.		10 By being trampled on or kicked by Horses whilst engaged in Railway Work.		11 By being struck by Articles thrown from passing Trains.		12 By the falling of Rails, Sleepers, &c., when at Work on the Line or in Sidings.		13 Otherwise Injured when at Work on the Line or in Sidings.		14 Miscel- laneous.		Total.		NAME OF COMPANY.
Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	Killed.	In- jured.	
...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	ENGLAND AND WALES— <i>cont.</i>
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	Rhondda and Swansea Bay.
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	4	Rhymney.
...	...	...	1	...	...	...	...	...	1	...	...	...	1	...	4	Severn and Wye Joint.
...	...	...	2	...	...	...	...	...	2	...	5	...	1	...	18	Sheffield and Midland Joint.
2	5	1	13	...	...	...	...	...	5	...	9	...	19	4	132	Someræst and Dorset Joint.
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	3	South-Eastern and Chat- ham.
...	2	...	2	...	...	...	...	...	9	...	10	...	12	...	92	Stalybridge Joint Station.
...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	3	Taff Vale.
...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	2	Waterloo and City.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	4	West London Extension.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	Wrexham, Mold, and Connah's Quay.
6	201	1	458	...	37	...	4	1	441	4	800	7	1,277	24	6,866	{ TOTAL, ENGLAND AND WALES.
SCOTLAND.																
...	6	...	8	...	1	...	...	...	10	...	6	...	27	...	156	Caledonian.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	Dumbarton and Balloch Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	12	Glasgow and Paisley Joint.
...	1	...	...	...	...	...	...	...	...	1	...	...	...	1	4	Glasgow and South- Western.
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	Glasgow, Barrhead, and Kilmarnock Joint.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	Great North of Scotland.
...	...	...	...	...	...	...	...	...	2	...	1	...	2	...	14	Highland.
...	9	...	4	...	...	...	...	...	12	1	11	2	29	5	149	North British.
...	16	...	12	...	1	...	...	...	24	2	18	2	63	6	341	TOTAL, SCOTLAND.
IRELAND.																
...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	Belfast and County Down.
...	2	...	1	...	...	...	...	...	8	...	5	...	3	...	46	Belfast and Northern Counties.
...	...	...	...	...	...	...	...	...	1	...	1	...	2	...	6	Cork, Bandon, and South Coast.
...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	3	Dublin, Wicklow, and Wexford.
...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	3	Dundalk, Newry, and Greenore.
...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	11	Great Northern.
...	1	...	4	...	...	...	2	...	7	...	15	...	11	...	59	Great Southern and Western.
...	...	...	...	...	...	...	...	...	2	...	...	...	2	...	9	Midland Great Western.
...	3	...	6	...	...	...	2	...	18	...	23	...	22	...	139	TOTAL, IRELAND.
6	220	1	476	...	38	...	6	1	483	6	841	9	1,362	30	7,346	{ TOTAL, UNITED KING- DOM.

purpose of working the railway, but does not include factories, workshops, buildings used exclusively for warehousing goods, repairing other similar premises.





## ACCIDENTS TO TRAINS, ROLLING STOCK AND PERMANENT WAY.

TABLE No. 11.

**SUMMARY STATEMENT of the NUMBER of ACCIDENTS to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to the BOARD OF TRADE as having occurred on the RAILWAYS in each DIVISION of the UNITED KINGDOM during the Nine Months ending 30th September 1902, classified according to the NATURE of the ACCIDENT; with figures for the UNITED KINGDOM for the corresponding period of 1901.**

NATURE OF ACCIDENT.	1902.				1901.
	ENGLAND AND WALES.	SCOTLAND.	IRELAND.	UNITED KINGDOM.	UNITED KINGDOM.
<b>(A)—ACCIDENTS TO TRAINS:—</b>					
1. Collisions between passenger trains or parts of passenger trains.	15	6	1	22	33
2. Collisions between passenger trains and goods or mineral trains or light-engines.	18	8	...	26	34
3. Collisions between goods trains or parts of goods trains and light-engines.	17	2	...	19	34
4. Collisions between trains and vehicles standing foul of the line.	9	4	...	13	4
5. Collisions between trains and buffer-stops or vehicles standing against buffer-stops:—					
(a) From trains running into stations or sidings at too high a speed.	11	1	1	13	12
(b) From other causes ... ..	9	2	...	11	12
6. Trains coming in contact with projections from other trains on parallel lines.	7	...	...	7	...
7. Passenger trains or parts of passenger trains leaving the rails.	34	5	6	45	47
8. Goods trains or parts of goods trains, light-engines, &c., leaving the rails.	6	3	...	9	13
9. Trains running through gates at level-crossings or into other obstacles.	91	30	8	129	151
10. Fires in trains ... ..	7	6	...	13	16
11. Miscellaneous ... ..	1	1	...	2	1
<b>(B)—ACCIDENTS TO OR FAILURE OF ROLLING STOCK AND PERMANENT WAY:—</b>					
12. The bursting of boilers or tubes, &c., of engines...	1	...	...	1	4
13. The failure of machinery, springs, &c., of engines	4	...	1	5	2
14. The failure of tyres ... ..	168	6	2	176	152
15. " " " wheels... ..	2	...	1	3	1
16. " " " axles ... ..	95	28	1	124	129
17. " " " brake apparatus* ... ..	...	...	...	...	...
18. " " " couplings ... ..	8	...	2	10	6
19. " " " ropes used in working inclines ...	...	...	...	...	...
20. " " " tunnels, bridges, viaducts, culverts, &c.	2	...	...	2	...
21. Broken rails ... ..	180	23	31	234	236
22. The flooding of portions of permanent way of such a nature as to involve danger.	6	...	...	6	7
23. Slips in cuttings or embankments of such a nature as to involve danger.	3	1	...	4	5
24. Fires at stations or involving injury to bridges or viaducts.	7	...	...	7	5
25. Miscellaneous ... ..	1	...	...	1	...

\* A Return is published half-yearly setting out in detail all the cases in which brake apparatus has failed to act properly.

TABLE No. 12.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Nine Months ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES.													
Brecon and Merthyr ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambrian ... ..	...	...	...	...	...	...	...	...	2	...	1	...	...
Central London ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheshire Lines ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
City and South London ...	...	...	...	...	...	...	...	...	...	...	...	1	...
Festiniog ... ..	...	...	...	...	...	...	...	...	1	1	...	...	...
Furness ... ..	...	...	...	...	...	...	...	...	...	...	1	...	...
Great Central ... ..	...	...	...	...	...	...	2	...	...	...	3	...	...
Great Eastern ... ..	1	1	...	...	1	...	...	...	...	...	22	...	...
Great Northern ... ..	2	...	2	...	...	...	1	6	...	...	3	...	...
Great Northern and London and North Western Joint.	...	...	...	...	...	...	...	...	...	...	...	...	...
Great Western ... ..	...	4	...	2	2	1	1	3	...	...	20	1	...
Hull, Barnsley, and West Riding Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...
Lancashire and Yorkshire	2	...	1	1	2	2	...	...	...	1	4	...	...
Lancashire and Yorkshire and London and North-Western Joint.	...	...	...	...	...	...	...	...	...	...	1	...	...
Lancashire, Derbyshire, and East Coast.	...	...	...	...	...	...	...	1	...	...	...	...	...
London and North-Western	1	4	5	2	...	1	...	...	...	3	1	1	...
London and North-Western and Great Western Joint.	...	...	1	...	...	...	...	1	...	...	...	1	...
London and North-Western and Midland Joint.	...	...	...	1	...	...	...	...	...	...	...	...	...
London and South-Western	1	...	...	...	1	1	...	1	...	...	7	...	...
London, Brighton, and South Coast.	2	1	...	1	1	...	2	1	...	...	7	1	...
London, Tilbury, and South-end.	...	...	...	...	...	...	...	...	...	...	...	...	...
Maryport and Carlisle ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Mersey and Wirral Joint...	1	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Metropolitan and Metropolitan District Joint.	...	...	...	...	...	...	...	1	...	...	...	...	...

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE No. 12.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 30th September 1902.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Cuttings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	...	...	...	...	...	...	...	3	...	...	...	...
...	...	...	...	1	...	...	...	...	3	3	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	3	...	...	...	...	...	...	2	...	...	...	...
...	...	2	...	2	...	...	...	...	5	...	...	...	...
...	...	...	...	3	...	...	...	...	7	3	2	1	...
...	...	2	...	3	...	1	...	1	10	...	...	1	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	1	2	...	13	...	...	...	...	20	...	...	...	...
...	...	...	1	...	...	...	...	...	1	...	...	...	...
...	1	5	...	2	...	2	...	...	10	...	...	...	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	39	...	20	...	...	...	...	8	...	...	...	...
...	...	...	...	...	...	...	...	...	8	...	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	4	...	3	...	1	...	...	10	...	...	...	...
1	...	...	...	3	...	1	...	...	1	...	...	...	...
...	...	...	...	1	...	...	...	...	1	...	...	...	...
...	...	...	...	2	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	8	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	2	...	...	...	...	5	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...

under B are entered against the Company to which the rolling-stock or permanent-way belongs.

## ACCIDENTS TO TRAINS, ROLLING

TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Nine Months ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops or Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
ENGLAND AND WALES —cont.													
Metropolitan District ...	...	...	...	...	1	...	...	...	...	...	...	...	...
Midland ... ..	...	2	4	...	...	1	...	1	...	2	...	...	...
Midland and Great Northern Joint.	...	...	...	...	...	...	...	...	...	6	...	...	...
Midland and Great Western Joint.	1	...	...	2	...	...	...	...	...	...	...	...	...
Midland and South-Western Junction.	...	...	...	...	...	...	...	...	...	...	...	...	...
North-Eastern ... ..	2	4	3	...	1	1	1	8	1	8	2	...	...
North-Eastern and London and North-Western Joint.	...	...	...	...	...	1	...	1	...	...	...	...	...
North Staffordshire ...	...	...	...	...	...	...	...	1	...	...	...	...	1
North Wales Narrow Gauge.	...	...	...	...	...	...	...	3	...	...	...	...	...
Rhondda and Swansea Bay	...	...	...	...	...	...	...	...	...	...	...	...	...
Rhymney ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Sheffield and Midland Joint.	...	1	...	...	...	...	...	...	...	...	...	...	...
Somerset and Dorset Joint	...	...	...	...	...	...	...	...	...	2	...	...	...
South-Eastern and Chatham.	2	1	...	...	2	1	...	3	...	3	...	...	...
South Wales Mineral ...	...	...	1	...	...	...	...	...	...	...	...	...	...
Taff Vale ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Waterloo and City ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Wigan Junction ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
Wrexham, Mold, and Connah's Quay.	...	...	...	...	...	...	...	...	...	...	...	...	...
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, ENGLAND AND WALES.	15	18	17	9	11	9	7	34	6	91	7	1	

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but these

## STOCK, AND PERMANENT WAY.

TABLE NO. 12—continued.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 30th September 1902.

B.													
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
The bursting of Boilers or Tubes, &c., of Engines.	The failure of Machinery, Springs, &c., of Engines.	The Failure of Tyres.	The Failure of Wheels.	The Failure of Axles.	The Failure of Brake Apparatus.	The Failure of Couplings.	The Failure of Ropes used in working Inclines.	The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	Broken Rails.	The Flooding of Portions of the Permanent Way, involving Danger.	Slips in Outtings or Embankments of such a Nature as to involve Danger.	Fires at Stations or involving Injury to Bridges or Viaducts.	Miscellaneous.
...	...	...	...	...	...	...	...	...	2	...	...	...	...
...	...	1	...	3	...	...	...	...	8	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	1	...	...	...	...	...	...	...
...	...	6	...	15	...	...	...	...	47	...	...	3	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	1	...	1	...	1	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	...	...	2	...	1	...	1	20	...	...	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	2	...	...	...	...	...	...	1	...	...
...	...	...	1	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	1	...	...	...	...	...	...	...	...	...
...	...	101	...	11	...	...	...	...	...	...	...	...	...
1	4	168	2	95	...	8	...	2	180	6	3	7	1

under B are entered against the Company to which the rolling-stock or permanent-way belongs.

## ACCIDENTS TO TRAINS, ROLLING

TABLE No. 12—continued.

NUMBER of ACCIDENTS of EACH CLASS, to TRAINS, ROLLING STOCK, PERMANENT WAY, &c., reported to  
Nine Months ending

NAME OF COMPANY.	A.												
	1.	2.	3.	4.	5.		6.	7.	8.	9.	10.	11.	
	Collisions between Passenger Trains or Parts of Passenger Trains.	Collisions between Passenger Trains and Goods or Mineral Trains or Light Engines.	Collisions between Goods Trains or Parts of Goods Trains and Light Engines.	Collisions between Trains and Vehicles standing foul of the Line.	Collisions between Trains and Buffer Stops and Vehicles standing against Buffer Stops.	(a.) From Trains running into Stations or Sidings at too high a speed.	(b.) From other Causes.	Trains coming in Contact with Projections from other Trains on Parallel Lines.	Passenger Trains or Parts of Passenger Trains leaving the Rails.	Goods Trains or Parts of Goods Trains, Light Engines, &c., leaving the Rails.	Trains running through Gates at Level Crossings or into other obstacles.	Fires in Trains.	Miscellaneous.
SCOTLAND.													
Caledonian ... ..	2	2	1	1	...	2	...	3	2	14	5	...	...
Dundee and Arbroath Joint	...	...	...	1	...	...	...	...	...	1	...	...	...
Glasgow and South Western.	1	4	...	...	...	...	...	2	1	1	...	...	...
Glasgow District Subway	1	...	...	...	...	...	...	...	...	...	...	...	...
Highland ... ..	...	...	...	...	1	...	...	...	...	1	...	...	...
North British ... ..	2	2	1	2	...	...	...	...	...	13	1	1	1
Private Owners ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL, SCOTLAND ...	6	8	2	4	1	2	...	5	3	30	6	1	1
IRELAND.													
Belfast and County Down	...	...	...	...	1	...	...	1	...	...	...	...	...
Belfast and Northern Counties.	1	...	...	...	...	...	...	1	...	...	...	...	...
Cavan and Leitrim ...	...	...	...	...	...	...	...	...	...	2	...	...	...
Cork, Bandon and South Coast.	...	...	...	...	...	...	...	...	...	3	...	...	...
Dublin, Wicklow and Wexford.	...	...	...	...	...	...	...	...	...	1	...	...	...
Great Northern ... ..	...	...	...	...	...	...	...	1	...	1	...	...	...
Great Southern and Western.	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland Great Western ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Timoleague and Courtmacsherry.	...	...	...	...	...	...	...	1	...	...	...	...	...
West Clare ... ..	...	...	...	...	...	...	...	2	...	1	...	...	...
TOTAL, IRELAND ...	1	...	...	...	1	...	...	6	...	8	...	...	...
TOTAL, UNITED KINGDOM	22	26	19	13	13	11	7	45	9	129	13	2	2

NOTE.—In this Table accidents under A are entered against the Company on whose line they occur, but those

## STOCK, AND PERMANENT WAY.

TABLE No. 12—continued.

the BOARD of TRADE as having occurred on the several RAILWAYS in the UNITED KINGDOM, during the 30th September 1902.

B.													
12. The bursting of Boilers or Tubes, &c., of Engines.	13. The failure of Machin- ery, Springs, &c., of Engines.	14. The Failure of Tyres	15. The Failure of Wheels.	16. The Failure of Axles.	17. The Failure of Brake Apparatus.	18. The Failure of Couplings.	19. The Failure of Ropes used in working Inclines.	20. The Failure of Tunnels, Bridges, Viaducts, Culverts, &c.	21. Broken Rails.	22. The Flooding of Portions of the Perma- nent Way, involving Danger.	23. Slips in Cuttings or Embank- ments of such a Nature as to involve Danger.	24. Fires at Stations or involving injury to Bridges or Viaducts.	25. Miscel- laneous.
...	...	4	...	7	...	...	...	...	20	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	1	...	14	...	...	...	...	2	...	1	...	...
...	...	...	...	7	...	...	...	...	...	...	...	...	...
...	...	6	...	29	...	...	...	...	23	...	1	...	...
...	...	...	...	...	...	...	...	...	5	...	...	...	...
...	...	1	...	1	...	1	...	...	1	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	6	...	...	...	...
...	...	...	...	...	...	...	...	...	11	...	...	...	...
...	1	...	1	...	...	1	...	...	8	...	...	...	...
...	...	1	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	1	2	1	1	...	2	...	...	31	...	...	...	...
1	5	176	3	124	...	10	...	2	234	6	4	7	1

under B are entered against the Company to which the rolling-stock or permanent-way belongs.





## APPENDIX A.

### REPORTS TO THE BOARD OF TRADE BY INSPECTING OFFICERS OF THE RAILWAY DEPARTMENT UPON CERTAIN ACCIDENTS WHICH HAVE BEEN INQUIRED INTO.

	Page.		Page.
<b>BELFAST AND NORTHERN COUNTIES :</b>		<b>LONDON, BRIGHTON, AND SOUTH COAST :</b>	
Major Pringle's report on the collision which occurred on the 25th September between two portions of a special troop train, between Trooper's Lane and Carrickfergus Stations.	47	Lieutenant-Colonel von Donop's report on the collision which occurred on the 9th July between a passenger train and the buffer stops at Kemp Town Station.	90
<b>CALEDONIAN :</b>		Lieutenant-Colonel von Donop's report on the accident which occurred on the 9th July to a passenger train, which left the rails near West Croydon Station.	95
Major Pringle's report on the accident which occurred on the 15th July to a passenger train, a portion of which left the road at Bannockburn.	52	<b>NORTH BRITISH :</b>	
<b>GLASGOW AND SOUTH WESTERN :</b>		Major Pringle's report on the collision which occurred on the 20th August between a passenger train and a train of roundabouts at Hilton Junction.	102
Lieutenant-Colonel Yorke's report on the collision which occurred on the 23rd July between a passenger train and a goods train at Gorbals Junction.	56	Major Pringle's report on the collision which occurred on the 30th August between two passenger trains at Charing Cross Station, Glasgow.	106
<b>GREAT WESTERN :</b>		<b>NORTH EASTERN :</b>	
Lieutenant-Colonel von Donop's report on the collision which occurred on the 19th September between a passenger train and a light engine near Westbourne Park Station.	59	Lieutenant-Colonel von Donop's report on the collision which occurred on the 27th August between a passenger train and a train of empty cattle waggons near Forth Junction, Newcastle.	112
Lieutenant-Colonel von Donop's report on the accident which occurred on the 25th September to a passenger train, through the breakage of an axle of the engine near Templeton Station.	65	Lieutenant-Colonel von Donop's report on the collision which occurred on the 5th September between two passenger trains at Harrogate Station.	117
<b>GREAT WESTERN AND MIDLAND JOINT :</b>		<b>SOUTH EASTERN AND CHATHAM :</b>	
Lieutenant-Colonel von Donop's report on the two collisions which occurred on the 12th September between trains at Bristol.	71	Major Pringle's report on the accident which occurred on the 17th August to a passenger train, a portion of which left the rails at Elephant and Castle Station.	122
<b>LONDON AND NORTH WESTERN :</b>		<b>SOUTH WALES MINERAL :</b>	
Lieutenant-Colonel von Donop's report on the collision which occurred on the 12th April between two passenger trains near Sutton Coldfield Station.	78	Major Drutt's report on the collision which occurred on the 16th August between two mineral trains in Gyluchy Tunnel.	126
Lieutenant-Colonel von Donop's report on the collision which occurred on the 7th August between a passenger train and some empty coaches at Crewe Station.	85		

For other Reports of Inquiries into Accidents which have occurred during the  
nine months, see [Cd. 1232 and Cd. 1508].

112

For  
9.12.1971  
C. 1771

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## BELFAST AND NORTHERN COUNTIES RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
November 25th, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of 1st October, the result of my inquiry into the cause of the collision, which occurred on the 25th September, about 5.40 a.m., between Trooper's Lane and Carrickfergus Stations on the Belfast and Northern Counties Railway.

In this case a special troop train, from Ballincollig, co. Cork, to Larne Harbour, became divided, and the rear portion collided with the front portion of the train.

The special train was hauled by a four-wheels-coupled, leading bogie, tender engine, running engine first, and consisted of the following vehicles in the order named :—

- 1 4-wheeled goods brake van.
- 24 4-wheeled cattle trucks (covered).
- 1 6-wheeled first-class carriage.
- 1 6-wheeled third-class carriage.
- 1 6-wheeled third-class brake.

The waggon and carriage stock were the property of the Great Southern and Western Railway Company.

The engine, the property of the Belfast and Northern Counties Railway, was fitted with the steam brake actuating blocks on the four coupled, and six tender wheels. The vacuum continuous brake, for which the engine was also equipped, was not in operation through the train. Two of the cattle trucks were loaded with saddlery and hay and oats, and the remainder with cavalry horses.

Three horses were killed or had to be destroyed, but fortunately none of the troopers, who all occupied the last three vehicles, or of the Company's employes were injured.

The number of horses destroyed was surprisingly small, taking into consideration the effects of the collision on the cattle waggons. The first four vehicles were practically wrecked, three others were overturned into an adjoining field, and twelve more were derailed and damaged. The last nine vehicles kept the rails and received little or no injury.

The permanent way for a distance of about 100 yards was wrecked, or slewed out of position.

A list of damage to rolling stock, and a list showing the position the various vehicles occupied in the train, are given in the Appendix.

#### *Description.*

The train had been taken over from the Great Northern Railway by the Belfast and Northern Counties Railway at Antrim Junction, and was travelling over the latter Company's line to Larne Harbour, when the accident occurred.

After passing Ballyclare Junction the train ran through Mossley, Greenisland, and Trooper's Lane stations, and the collision took place between the latter station and Carrickfergus.

There is a double line of way between these points, and the railway runs in an easterly direction as far as Greenisland, and thence in a north-easterly direction towards Larne.

Between Mossley Station and the scene of the accident is a distance of about five miles. Mossley Station is situated on a summit about 194 feet above the site of the collision. With the exception of level stretches at Greenisland and Trooper's Lane stations, the gradients on this section all fall in the direction in which the train was travelling. The approximate lengths of gradient are as follows, commencing at Mossley Station :—

Yards.

2,000 gradients of 1 in 108 and 1 in 85.

3,000 „ „ 1 in 153 to 1 in 375.

300 of level at Greenisland Station.

1,900 of gradient of 1 in 130.

400 of level at Trooper's Lane Station.

1,000 of gradient of 1 in 98 to site of accident.

The curvature of the line is easy. South-west of Trooper's Lane there is a long curve to the left, where the line is carried on embankment. North-east of the same station there is a long curve (radius 60 chains) to the right, on which the accident took

place. This last curve is mainly in cutting, and the view behind an engine is therefore considerably circumscribed.

### *Evidence.*

*William Getty*, assistant traffic inspector, states : The train in question was a horse special, and started from Ballincollig, Cork (Great Southern and Western Railway). It would have been taken over by the Great Northern Railway at Dublin, and was taken over by the Belfast and Northern Counties Railway at Antrim Junction. All the waggon and carriage stock was the property of the Great Southern and Western Railway Company. The Belfast and Northern Counties Railway Company supplied the engine from Antrim Junction. The train was running to Larne Harbour. It left Antrim Junction at 4.56 a.m., and was booked to pass Greenisland at 4.50 a.m., and to arrive at Larne Harbour at 5.35 a.m. The train contained Government horses and troopers in charge of horses, and was classed in accordance with custom as a cattle train. There were about 140 horses in the train, and about 50 to 60 troopers. I travelled on the engine from Antrim with the main object of attending to the shunting at Larne Harbour, and to the transhipment of the horses to the steamer. I also had a general supervision of the train journey. By my watch we passed Greenisland at 5.31 a.m. The driver shut off steam at Ballyclare Junction at the summit of Mossley Bank, from which point there is a falling gradient into Greenisland, averaging about 1 in 100. At the same point the fireman applied the hand brake on the tender, with the result that the speed was gradually reduced till at the south end of Greenisland Station it would be about 10 or 12 miles an hour. Through the station the lines are level, and the hand brake was released. A short distance beyond the north signal cabin the driver applied steam, just about where the falling gradient commences. At the time of the collision we were travelling without steam. Before shutting off steam the speed of the train might have been from 20 to 25 miles an hour. At the time of the collision the speed was about 15 miles an hour. I did not look round until near the Harbour Junction down distant signal between the Gatehouse crossing (Robinson's) and the occupation crossing (Smiley's). I then saw one of the horse waggons off the road. I told the driver. He sounded the alarm whistle for the guard to put on his hand brake. The driver was slowing up for Carrick, and the next thing I was aware of was a crashing sound, and the engine jumped forward about 40 yards. He then brought the engine to a stand with the steam brake. There was then a gap of about 40 yards between the tender and the remains of No. 94 brake van. I got down from the engine and sent the driver and engine forward to Carrickfergus, and the guard to protect the rear of the train. I found the roof and sides and wheels of the front brake van (No. 94) missing. The coupling between the tender and frame was unhooked off the frame. I found that none of the troopers were injured in any way. There were three horse waggons thrown into the field—the seventh, eighth, and ninth behind the engine. Three horses had to be shot. The second vehicle was thrown on its side on to the up line—the rear coupling must have uncoupled. No other parting of the train actually occurred, but the first 19 vehicles were badly buffer-locked. If I had looked behind earlier I should have seen that the train had parted. There was drizzling rain at the time, but not much fog. I lifted the fractured coupling, which is now shown, out of the slot in the trailing end of No. 94 brake frame.

*Hugh James Beggs*, signalman, states : I am signalman at Greenisland south cabin. On the 25th September my hours of duty were from 5 a.m. till 3 p.m. The train in question was offered to me as a special passenger train at 5.23 a.m. and accepted. When I got the departure signal I pulled off all the up signals, having previously offered the train and had it accepted by the north cabin. When the special passed by my box the speed might have been about 15 miles an hour. I saw two lamps on the rear vehicle—they were lighted. The train was gathered up together, buffers touching. After going well through the station, I saw steam applied to the engine. I saw the guard in the rear van as he passed my cabin.

*William Hagan*, signalman, states : I am signalman at Greenisland north cabin. On the 25th September my hours were from 5 a.m. to 3 p.m. The special train was offered me by south cabin at 5.25 a.m. I accepted it at once. At 5.31 a.m. I received the departure signal. The train when I first saw it would be travelling at 9 or 10 miles an hour and had no steam applied. When the engine was between the cabin and the advance starting signal I saw steam applied. I saw two tail lamps on the rear vehicle—they were I think lit. When the engine was between the cabin and the advance starting signal I saw a clear space of about a waggon's length nearly in the middle of the train. The waggons were all lying against the engine passing my cabin. I knew the train had divided, and sent the train examining signal to Carrickfergus. This signal was acknowledged. I offered the special and it was accepted at 5.25 a.m. by Carrickfergus. I believe the engine was in rear of the advance starting signal when I saw that the train had parted. It did not then occur to me to put the advance starting signal to danger. I also telephoned to the station-master at Greenisland, to telegraph to Carrickfergus that the special had become divided. Trooper's Lane, the next station north, is not a block station. If the break in the train had been close to the engine I do not think I should have noticed it, as the engine was so much further away.

*William Erskine*, porter, states : I am employed at Trooper's Lane. On the 25th September my hours of duty were from 11.30 a.m. till 11.30 p.m. I was standing near the office on the up platform when the special passed through the station. When I first noticed the train the engine and about 15 waggons had just cleared the down platform. I turned south and saw a portion of the train had broken away and was following at a distance of about a quarter of a mile. The engine was running without steam when I saw her. There were about 10 waggons in the rear part, and when they passed through the station they were running at a higher speed than the front portion. I looked out for the guard in the rear portion, but did not see him. I did not call out to him as I thought with the noise made by the train it would not have been of any use. There was no other of the Company's employes at the station at that time. There was certainly more than one vehicle behind the engine when I noticed her. I did not notice that the train was divided until after she had passed me. I saw the couplings hanging and no tail lamp at the end of the first portion. If I had seen the guard of

the train I should have held up my hands. As it was I did not do so.

*Robert McIlraith*, permanent way inspector, states: I was on the scene of the accident about 6.20 a.m. The engine and tender had gone on to Carrickfergus. I had a look at the vehicles as I passed them coming from the south and went on to where the three horse waggons were lying in the field. I cannot say for certain from examination that none of the couplings were uncoupled.

*Samuel Palmer*, driver, states: I have 39 years' service with the Company, and have driven about 30 years. On the 25th September my hours of duty were from 3 a.m. till 1.40 p.m. I was driving No. 3 passenger engine—a four-wheels-coupled, leading bogie, tender engine, running engine first. The engine was fitted with a steam brake working blocks on the four coupled and tender wheels and a hand brake on the tender wheels. The vacuum continuous brake was not in operation on the train. The brakes were in good order. We left Antrim at about 4.57 a.m., about 45 minutes late. I counted 27 vehicles altogether before backing on to the train at Antrim. I shut off steam after passing Ballyclare Junction at the top of the bank. I ran down the bank without steam. The fireman applied the hand-brake at Mossley crossing about three miles from Greenisland. The speed of the train slackened until when passing south box, Greenisland, our speed was about 12 miles an hour. We were not booked to stop at Greenisland. After passing the north box about 100 yards I applied steam for about 150 yards and then shut it off. I did not think the speed high enough without steam. I looked behind before entering the curve south of Trooper's Lane, on the straight, but noticed nothing wrong. I did not look behind again until after the collision. I only used the shunting valve when I applied steam and did not perceive any sudden start forward. About 200 or 300 yards north of Trooper's Lane I had the hand-brake applied to collect the train together, when our speed was about 18 miles. The first time my attention was drawn to anything wrong was a knock forward of the engine. The fireman told me that a waggon was off the road and told me to apply the brake. I said "No," and told the fireman to release the hand-brake. I looked round on my side and saw the van behind us, buffer-locked on the tender. We ran about 100 yards when I saw that the effects of the collision were over, and then I brought the engine to a stand about 50 or 60 yards in front of the train. I experienced very little shock from the collision and was not thrown backwards.

The shock was not one which I should have thought it necessary to report if the accident had not happened.

*Thomas Thompson*, fireman, states: I have 13 years' service. On 25th September my hours of duty were the same as driver Palmer's. I was with him. Through Greenisland steam was not applied. North of the north signal cabin steam was applied for a distance of about 120 yards, when our speed might have been 20 miles an hour. I looked behind coming through Greenisland and also after passing Trooper's Lane; on both these occasions the rear of the train was coming all right. I saw the porter on the up platform about the signal cabin. The first I knew of the accident was a shock I felt before reaching the Harbour distant signal; it was slight. I looked back and saw the brake van behind the tender was off the road. I told the driver there was a waggon off the road and told him to apply the brake. He said "No, take off yours."

*George Henry*, goods guard, states: I have about 22 years' service with the Company. On the 25th September my hours of duty were from 3 a.m. till 2 p.m. This was a special tour of duty. I was in charge of the 4.10 a.m. special cattle train from Antrim to Larne Harbour. The Great Northern Railway guard had no remarks to make when he handed the train over. The train consisted of:—

- 24 cattle waggons, all four-wheeled.
- 1 first-class carriage, six wheels.
- 1 third-class carriage, six wheels.
- 1 third brake carriage, six wheels.
- 1 goods brake van, four wheels, in front of the train.

I was riding in the rear of the train in the third-class brake in the last compartment. I was looking out on the right hand side of the train as we ran through Greenisland Station. I then crossed to the left hand side near the north end of the station. I looked out to see the Trooper's Lane signals and they were all right. I then entered the time of our leaving Greenisland in my book. I then sat down by the brake and applied it gently in order to keep the couplings taut. I looked out on the right hand side as we passed Trooper's Lane Station. I saw a porter standing on the platform, but I did not put my hand out of the window. I did not see him make any signal. After passing Trooper's Lane I noticed a slight shock as if the driver was slacking for signals, and looked on the right hand side. Before looking out of the window I tightened the hand brake. When I looked out of the window I saw one of the vans off the rails.

### Conclusion.

This accident was clearly caused by the train becoming divided. It is difficult to prove whether the division was caused by the fracture of one of the couplings, or by unhooking. Further, there is no actual proof at what place on its journey the train divided, or where the actual division in the train occurred.

Mr. Getty, in his evidence, states that after the accident he found the last link of the trailing coupling of the first vehicle behind the engine (No. 94 brake van) broken at one end. I saw this link and the fracture showed very defective welding. The link had been attached to the leading draw-hook of the second vehicle (cattle truck No. 1,655). The Company's officials came to the conclusion that the original division in the train was between the first and second vehicles, and was caused by the failure of this link.

This conclusion is not supported by other evidence given at my enquiry by eye-witnesses.

Signalman Hagan, of Greenisland north cabin, states that whilst passing him "the waggons were lying up against the engine." He goes on to say that he saw steam

applied to the engine, and then noticed a clear space of about a waggon's length in the middle of the train. He at once concluded that the train had become divided, and sent the "train examining" signal to Carrickfergus. This statement is corroborated by porter Erskine, who was standing on the up platform at Trooper's Lane Station as the special train passed through on the down line. He states that the engine and about 15 waggons had cleared the down platform, when he saw a second portion following at a distance of about a quarter of a mile. The evidence of both these men remained unshaken under cross-examination.

Neither of the three men on the engine appear to have utilized the opportunity afforded them by the curved embankment south of Trooper's Lane to get a good view of the rear of their train. I am not prepared, therefore, to accept the statements of either driver Palmer, who looked behind before reaching this curve, or of fireman Thompson, who looked behind after passing Trooper's Lane Station, as of any value as regards the condition of the train at those moments.

But I think that the fact that neither Mr. Getty, the driver, or fireman, noticed that any division of the train had occurred until the collision took place is more easily explainable if the break occurred further away from the engine than behind the first vehicle. I am also of opinion that, if the collision took place so close to the engine as their theory indicates, the three men concerned would have experienced a far more violent shock than they did.

The evidence is to the effect that only one coupling link was found broken after the accident. I could obtain no decisive statement as to where couplings were found unhooked. But it is clear, from the position of the second vehicle on the up road, that the coupling between it and the third vehicle was unhooked, and photographs further show that the couplings between the fifth and sixth, and between the ninth and tenth vehicles must also have been freed. It is possible, of course, that any or all of these uncouplings may have resulted from the accident.

I hold the opinion, in view of the above evidence and circumstances, that the train divided whilst running down the Mossley incline, owing to an uncoupling, possibly between the ninth and tenth vehicles, when the speed was checked by the tender brakes. The division would not be apparent so long as the speed continued to be checked, but would become visible immediately steam was applied to the engine north of Greenisland Station, when the first portion of the train, assisted by the falling gradient (1 in 130), would rapidly draw away from the rear portion, which would accelerate speed more slowly. When on passing Trooper's Lane the speed of the front portion was checked by brakes, the rear portion would gather a fresh impetus on the falling gradient of 1 in 98, and, overtaking the first part, cause the collision.

The link in the coupling between the first and second vehicles was, in my opinion, broken as a result of the accident when the second vehicle was derailed and thrown on to the up road.

I do not consider that any of the Company's employes are responsible for the dividing of the train. It is not clear however that the engine driver, fireman and guard utilized the opportunities afforded by the curvature of the line to assure themselves that the whole of the train was following in a safe and proper manner.

It is, I believe, contrary to general usage for Gedge's links to be welded at the end, as was the case with the one broken in this accident. The weld is usually in the side of the link, so that any failure in the welding still leaves some strength in the link from the double hook formed. The diameter ( $1\frac{3}{8}$  inches) of the link is that commonly in vogue.

Tracings of the drawhooks and couplings attached to cattle trucks Nos. 7,549 and 4,254 were supplied me by the Company. I noticed that the vertical dimensions between the tips of the hooks and the centres of the circular portions of the hooks in which the links lie are  $3\frac{3}{4}$  inches and 4 inches respectively. The latter dimension is in accordance with the standard plans for eight or ten tons private owners' waggons.

It appears that this special troop train, conveying about 140 Government horses and some 50 or 60 cavalymen, was dealt with by the three Railway Companies concerned as a cattle or goods train. In the order made by the Board of Trade under the Regulation of Railways Act, 1889, the exemption in Part III. B of the second schedule does not, in my opinion, cover the case of the train in question.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## APPENDIX.

## FORMATION OF TRAIN COMMENCING AT ENGINE.

1. Goods brake van, No. 94.—Completely wrecked.
2. Cattle truck, No. 1,655.—Found on up line 50 yards in rear of (1.)
3. Cattle truck, No. 712.—Lost one pair of wheels.
4. Cattle truck, No. 78.—Lost one pair of wheels.
5. Cattle truck, No. 4,237.—Off rails.
6. Cattle truck, No. 7,549.—Off rails.
7. Cattle truck, No. 4,107.—Overturned into field to outside of curve.
8. Cattle truck, No. 1,343.—Overturned into field to outside of curve.
9. Cattle truck, No. 4,101.—Overturned into field to outside of curve.
10. Cattle truck, No. 4,373.—Derailed.
11. Cattle truck, No. 4,188.—Derailed.
12. Cattle truck, No. 7,173.—Derailed.
13. Cattle truck, No. 4,356.—Derailed.
14. Cattle truck, No. 4,254.—Derailed.
15. Cattle truck, No. 4,247.—Derailed.
16. Cattle truck, No. 7,533.—Derailed.
17. Cattle truck, No. 128.—Derailed.
18. Cattle truck, No. 7,001.—Derailed.
19. Cattle truck, No. 4,102.—Derailed.
20. Cattle truck, No. 7,437.—Kept the rails.
21. Cattle truck, No. 7,535.—Kept the rails.
22. Cattle truck, No. 4,331.—Kept the rails.
23. Cattle truck, No. 1,099.—Kept the rails.
24. Cattle truck, No. 4,298.—Kept the rails.
25. Cattle truck, No. 4,323.—Kept the rails.
26. Passenger carriage, No. 330.—Kept the rails.
27. Passenger carriage, No. 565.—Kept the rails.
28. Passenger carriage, No. 554.—Kept the rails.

## DAMAGE TO WAGGON STOCK.

No. 94 brake van, Great Southern and Western Railway.—Underframe only remaining, body destroyed.

No. 1,655 cattle van, Great Southern and Western Railway.—2 broken side soles; 2 broken headstocks; 2 broken axleboxes; 3 broken corner pillars; 1 corner pillar missing; 1 door pillar missing; 3 broken door pillars; 2 broken doors; 1 door missing; 1 wall plate missing; 2 broken wall plates; 1 broken ridge pole; 1 half of iron roof missing; 2 broken starts and 2 missing; 1 broken end sweep; 2 broken starts and 2 missing; 1 broken door cill; 2 broken ends of sheeting away; 3 quarters of sheeting away; 1 drawbar and buffer plungers bent; half of floor away.

No. 712 close roofed van, Great Southern and Western Railway.—So badly damaged that it is almost impossible to give correct details.

No. 78 cattle van, Waterford, Limerick and Western Railway.—So badly damaged that it is almost impossible to give correct details.

No. 4,237 cattle van, Great Southern and Western Railway.—1 buffer plunger bent; 1 spring shoe missing; 1 bent brake rack; 1 corner pillar slightly damaged; 1 end start split; 3 end sheeting boards broken; roof damaged; 1 bottom door key missing.

No. 7,549 cattle van, Great Southern and Western Railway.—1 bent drawbar hook; 1 brass out of seat in axle box; 2 bent buffer plungers; 2 end starts broken; 2 corner pillars broken;

2 tie rods badly bent; 3 tail lamp brackets broken; 1 axle box lid broken; 1 end of sheeting entirely broken.

No. 4,107 cattle van, Great Southern and Western Railway.—2 broken side soles; 1 broken headstock; 2 broken diagonals; 1 broken longitudinal; 4 broken corner pillars; 4 broken door pillars; 4 broken starts; 2 broken end sweeps; 1 broken ridge pole; 2 broken end cross rails; 2 broken ends of sheeting; broken galvanised roof; 1 broken drawbar; 1 drawbar bent; 2 broken long wall plates; half of floor away.

No. 1,343 cattle van, Waterford, Limerick and Western Railway.—2 bent hornplates; 1 broken buffer shell; side brake bent; 1 broken long wall plate; roof completely away; 1 end of sheeting broken; 2 broken end starts; 2 damaged doors; 2 damaged quarters of sheeting.

No. 4,101 cattle van, Great Southern and Western Railway.—1 broken corner pillar; 2 bent buffers; 1 corner pillar damaged; 1 broken buffer plunger shoe; 1 broken end start; 1 broken brake rack; 1 headstock slightly split; 2 broken corner pillar straps; 3 broken end sheeting boards; part of zinc roof missing; 2 wall plate rails cut or broken; 1 roof ridge cut or broken; 1 broken floor board.

No. 4,373 cattle van, Great Southern and Western Railway.—1 bearing spring out of axle box; 1 buffer plunger and pads missing; 1 broken buffer shoe; 1 end start split; 1 corner pillar split; roof slightly damaged.

No. 4,188 cattle van, Great Southern and Western Railway.—4 bent buffer plungers; 3 buffer cotters required; 1 broken buffer shoe; 1 headstock and corner pillar slightly damaged.

No. 7,173 cattle van, Great Southern and Western Railway.—2 drawbars bent; 1 buffer cotter required; 1 brake rack bent; roof slightly damaged.

No. 4,356 cattle van, Great Southern and Western Railway.—1 broken spring shoe; 1 bent drawbar; 1 buffer casting broke and requires cotters; 1 brake rack broken; 2 corner pillars damaged.

No. 4,254 cattle van, Great Southern and Western Railway.—2 buffer plungers bent; 2 buffer draw springs broken; 1 bent brake lever; 2 buffer cotters required; 1 broken corner pillar; 1 broken end start; 2 doors missing; roof slightly damaged.

No. 4,247 cattle van, Great Southern and Western Railway.—1 drawbar bent; 1 buffer plunger bent; 1 broken buffer shoe; 2 buffer cotters required; 1 bent brake rack; 2 doors missing.

No. 7,533 cattle van, Great Southern and Western Railway.—1 old break in axle box; 2 buffer plungers require nuts on the ends; 3 buffer pads missing; 1 buffer washer missing.

No. 128 cattle van, Waterford, Limerick and Western Railway.—1 coupling missing; 2 doors missing; requires drawbar cotter.

No. 7,001 cattle van, Great Southern and Western Railway.—2 buffer plungers bent; 1 buffer plunger knocked up to headstock; 1 drawbar bent; 2 couplings missing; 1 corner pillar broken; 2 buffer cotters required.

No. 4,102 cattle van, Great Southern and Western Railway.—1 old break in axle box; 3 drawbars bent; 1 buffer plunger bent; 2 buffer cotters required; 1 headstock split; 1 bent brake rack; 4 end sheeting boards broken.

Printed copies of the above Report were sent to the Companies concerned on the 10th December.



## CALEDONIAN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, S.W.,  
23rd August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 22nd July, the result of my inquiry into the cause of the accident which occurred about 2.42 p.m. on the 15th July, at Bannockburn Station, on the Caledonian Railway.

In this case the 2 p.m. passenger train from Glasgow (Buchanan Street) to Perth was passing over the trailing points of a cross-over road in Bannockburn Station yard, when the leading bogie of the third vehicle behind the engine became derailed. The carriage, a composite bogie coach, was the property of the Highland Railway Company. It travelled a distance of about 1,630 yards, first with two wheels, and afterwards with four wheels off the rails. Shortly before coming to a stand the train parted owing to the fracture of the coupling between the second and third vehicles.

The train consisted of a four-wheels-coupled engine and six-wheeled tender, chimney leading, and 13 vehicles. Of these 10 were eight-wheeled bogie and three were six-wheeled stock. The train was fitted with the Westinghouse automatic brake actuating blocks on the four driving-wheels of the engine, the six wheels of the tender, and on 92 out of 98 of the coach and van wheels.

No serious injury resulted to any of the occupants of the train.

A list of the damage done to the derailed coach is given in the Appendix. Four or five chairs, a guard-rail, fish-plate, and sleeper were broken in the permanent way.

#### *Description.*

Bannockburn Station lies about midway between Larbert, to the south, and Stirling, to the north. The railway has two lines of road, for up and down traffic, respectively, and for the accommodation of passengers there is a separate platform for each line.

Through the station, and for a mile on either side of it, the alignment is on an easy curve, with a radius of about 100 chains.

The train in question approached Bannockburn from the south, and travelled on the down or western pair of rails. A mile south of the station the gradient begins to fall at an inclination of 1 in 118. This same falling gradient extends through Bannockburn Station yard northward for a further distance of half a mile. A short length (14 chains) of falling gradient of 1 in 156 succeeds, and is followed by a long stretch of practically level road.

Bannockburn Station signal cabin is on the west of both lines of way, and is situated about 67 yards south of the southern extremities of the platforms.

Measured from this signal cabin the approximate distances to various spots on the down line are as follows :—

	Yards.
(a.) Trailing points of cross-over road... ..	10 south.
(b.) Crossing of down siding ... ..	37 north.
(c.) Trailing points of down siding ... ..	60 "
(d.) Down starting signal ... ..	360 "
(e.) Bridge over River Bannock ... ..	1,170 "
(f.) Orchard private level crossing ... ..	1,260 "
(g.) Derailed vehicle stopped ... ..	1,590 "

The super-elevation of the outer rail of the flat curve south of Bannockburn Station varies from 2 inches to  $2\frac{1}{2}$  inches. At the spot (a.) the actual height of the outer rail above the inner was  $2\frac{3}{8}$  inches.

The weight of the engine and tender was about 86 tons. The weight of the derailed bogie coach was 23 tons 3 cwt., and its length over buffers  $49\frac{1}{2}$  feet.

#### *Evidence.*

*William Webster*, driver, states: I have 16 years' service with the Caledonian Railway. My hours of duty on the 15th July were from 5 a.m. till 3.40 p.m. I was driving the 2 p.m. passenger train from Buchanan Street Station to Perth on that day. My engine was No. 724, a four-wheels-

coupled bogie engine, chimney leading, with a six-wheeled tender. It was fitted with the Westinghouse automatic brake, with blocks on the four driving and six tender wheels; also with the hand brake on the tender wheels. The brakes were in good working order. I had to

slow through the loop at Larbert, and found the brake worked satisfactorily. After Larbert all signals were clear, including the distant and home signals at Bannockburn. My speed passing the signal cabin at Bannockburn would be between 45 and 50 miles an hour. I noticed no unusual jolt or throw on the engine when we passed over the points at Bannockburn, and have never noticed any unusual movement at this place. The first indication I had of anything being wrong was the application of the power brake from the rear of the train. This occurred when we were passing over the bridge over the Bannock. It was a gentle application, and on noticing it I placed the Westinghouse brake handle in the neutral position to allow the person using the brake to have full control. I had shut off steam before reaching the home signal at Bannockburn, and did not again apply it. After running some distance from the bridge there was a violent application of the brake, and the train came to a stand shortly afterwards. We ran about three-quarters of a mile from the spot where the first application of the brake was made. When we came to a stand the two leading coaches were still coupled, but the third was standing clear with its leading coupling broken. I went down to see what was wrong and found the leading bogie of the third coach was off the rails, the coupling broken, and the train pipe uncoupled. The Highland Railway guard in the fourth carriage told me he had applied the brake, as he heard stones striking the under part of his van. I was driving from the left of the engine. I am quite certain that as I approached and actually passed the Bannockburn starting signal it was in the safety position.

*David McAlinsh*, fireman, states : I have 7 years' service with the Company. My hours of duty on the 15th July were the same as those of my driver, William Webster. I felt nothing unusual in the motion of the engine as it travelled over the points in Bannockburn Station yard on the day of the derailment. I was looking ahead and blew the whistle before reaching the station. I did not look behind after leaving the station. The brake was applied from the rear of the train, and my driver then placed the handle in the neutral position.

*William Henry*, passenger guard, states : I have 12 years' service as a passenger guard. My hours of duty on the 15th July were from 1.30 p.m. till 12.39 a.m. I was the head guard of the 2 p.m. train on the day in question. The train was composed of 13 vehicles, marshalled as follows :

- Property of the Caledonian Railway.
- 1 bogie composite coach.
- Property of the Highland Railway.
- 1 bogie composite coach.
- 1 " " "
- 1 six-wheeled brake van.
- 1 bogie composite coach.
- Property of the Caledonian Railway.
- 1 six-wheeled fish van.
- 1 bogie third class coach.
- 1 six-wheeled third class coach.
- 1 bogie third class coach.
- 1 " " "
- 1 " composite coach.
- 1 " third class "
- 1 " brake van.

All wheels, except the centre pair of each of the three six-wheeled vehicles, were fitted with blocks actuated by the Westinghouse brake. I tried the brake before leaving Buchanan Street, and found it in good working order. I was

riding in the rear van. I noticed nothing unusual during the run to Bannockburn, and no unusual movement as we passed through the points in Bannockburn Station yard. Our speed at that time was our usual speed of from 45 to 50 miles an hour. The train is due to pass Larbert and Stirling Stations at 2.35 and 2.47 p.m. respectively. The distance between these stations is I understand about 8 miles. I felt the brakes being applied gently, and went to the right hand window to look out. I then saw the train had parted, and that the leading coach of the rear portion was coming to a stand in the six-foot way. I got down and found there was an interval of about 10 yards between the second coach on the train and the third, and that the leading bogie of the third coach was derailed and standing with all four wheels in the six-foot way. I spoke to the passengers in the third coach, of which there were a considerable number. None of them complained of any injury, but they said they had been shaken. One gentleman said he had pulled the connecting chain, and the indicator at the end of the coach showed that the chain had been pulled. I did not examine the couplings.

*Donald Campbell*, passenger guard, states : I have 25 years' service as a passenger guard with the Highland Railway. My hours of duty on the 15th July were from 1 p.m. till 9 p.m. I was travelling with the 2 p.m. train from Buchanan Street as through guard, and rode in the six-wheeled brake van, the fourth vehicle from the engine. The Highland Railway stock is fitted both for the vacuum and Westinghouse automatic brakes. I saw there was over 75 lbs. pressure indicated in my gauge. I experienced nothing unusual in the movement of my brake van as we ran through Bannockburn Station. After passing through the station, as we were approaching the starting signal, I heard something striking the bottom of my van, and looked out of my window on the right-hand side. I saw dust and ballast flying and sparks of fire, and then applied the Westinghouse brake gently. The brake had not then been applied by anyone, but after the train came to a stand I observed that the indicator disc outside the third coach from the front had been turned. I spoke to some of the passengers in the third coach. They did not complain of being hurt, but said the carriage had been jolting very badly. I went to Stirling with the engine to protect the up line, which was fouled by the derailed carriage, and told the signalman what had happened. I came back with a break-down gang, and a lady in the derailed coach gave me to understand that she or her husband had pulled the connecting chain. I acted in accordance with the instructions of the head guard, who went back to protect the rear of the train.

*Allen Ogilvie*, signalman, states : I have seven years' service as signalman, and have been one year at Bannockburn. My hours of duty on the 15th July were from 6 a.m. till 6 p.m. I remember the 2 p.m. train from Buchanan Street passing my box. She was running about up to time. I noticed something peculiar in the noise the train was making after the engine passed my box, so I looked out of the window and saw one of the coaches lurch at the crossing of the down line siding. I immediately went and threw my starting signal to danger, and gave the signal to Stirling South to "stop and examine train."

*Peter Craig*, ganger, states : I have been a ganger for 16 months in charge of four men. I was working on the line a mile south of Bannockburn, and saw the 2 p.m. train pass on

the down road. We heard something had gone wrong, and went down to the station. The first breakages we found were two chairs of the right hand rail north of the points and crossing. The check rail and chair of the right hand rail were broken, and a pair of fish-plates and two chairs of the siding rail. The marks on the sleepers made it clear that the left hand wheel was outside the rail between the trailing points of the cross-over road and the crossing of the siding points. North of the crossing the marks showed that the left hand wheel had jumped, after striking the crossing, into the four-foot way. Nothing more was broken in my section, which extends to a spot  $\frac{1}{4}$  mile north of the station. We try to keep the gauge true at all points to 4 feet  $8\frac{1}{2}$  inches, and at points keep the gauge exact. I cannot say exactly how often the gauge is tried.

*John McLaren*, permanent-way inspector, states: I am inspector for the line between Larbert Junction and No. 135 mile post north of Bannockburn. The broken chairs and plate mentioned by the last witness had been replaced before I arrived at the scene of the derailment. I ordered the ganger to put in a new sleeper at the siding points between the points and the crossing. On flat curves or on the straight I would not find fault with the ganger for widths of four feet  $8\frac{1}{4}$  inches to 4 feet 9 inches unless they occurred over a very short interval. I have put the gauge over the piece of track concerned, both on the afternoon of the accident and on the next morning, and found nothing in the gauge to take exception to, and nothing that required alteration. I am satisfied with the ballast packing of the road. The rails are 90 yards weight per yard in 32-foot lengths. The chairs weigh 35 lbs. each, and on an average there are three spikes to a chair. The sleepers are spaced at 3 feet central intervals. I can in no way account for the derailment. No alterations have been made in the permanent way beyond those described by the ganger and myself.

*David Henry*, locomotive works manager, High-

land Railway, states: No. 58 bogie composite carriage was built in November, 1899, and has been running since that time. The carriage was in the repair shops on the 26th March, 1902, to have its wheels turned and running gear examined. It was then put in a thorough state of repair. Subsequent to the derailment the carriage was sent to Inverness, where I examined it carefully—wheels, axles, axle-boxes and springs. I found everything correct and in good working order. The only point I noticed was that the leading pair of wheels of the leading bogie were slightly tight to gauge, barely  $\frac{3}{16}$  inch. This tightness was not in my opinion sufficient to cause a derailment. We found at Inverness that the leading truss bar was missing, and also the two brake blocks, which were subsequently found in one of the compartments of the carriage. The eyes of the brake blocks were broken after the derailment in order to release the blocks from the wheels before re-railing the carriage.

*Robert Dobbie*, locomotive foreman, Caledonian Railway, states: I arrived at the site of the derailment at 3 p.m. with the break-down gang from Stirling. All four wheels of the leading bogie of No. 58 composite carriage (Highland Railway) were in the six-foot way. The link of the screw coupling was broken near the pin hole, and was drawn out straight. After re-railing the vehicle I gauged the wheels and found them correct to gauge, on the tight side. The carriage was then taken to Stirling. Here I tested the axles with the gauge, and found there was an out of straight of between  $\frac{3}{16}$  and  $\frac{1}{4}$  of an inch. In my opinion this amount of out of straight is insignificant. I noticed the marks made on both sides of the body by the wheels owing to the bogie being skewed first in one direction and then in the other. There was, in my opinion, so far as the carriage was concerned, nothing to account for the derailment of the leading bogie. I did not look particularly at the insides of the flanges, but observed no indication in the way of special marks on the tyres of the wheels.

### Conclusion.

The circumstances attending this derailment as set forth in the evidence, and as indicated by an actual inspection of the railway and derailed vehicle, are as follows:—

The train was travelling at a speed of from 45 to 50 miles an hour, and the heavy engine and two first bogie carriages kept on the rails throughout. The leading pair of wheels of the front bogie of the third carriage jumped off the rails whilst moving through the trailing points of the cross-over road (spot *a* in the description). Marks on the sleepers a few yards in front of these points show that the left hand wheel was six inches outside the rail, and the right hand wheel in the four-foot way. At the crossing of the down siding (*b* in the description) the wing of the guard rail in the four-foot way was struck and broken off by the right hand wheel. There are also marks to show that the left hand wheel struck the inside of the angle of the crossing. The result of this severe blow was to throw the pair of wheels to the right. Wheel marks on the sleepers between the crossing and the points (*c* in the description) show that the right hand wheel was in the six-foot way 10 inches outside the rail, whilst the left hand wheel was in the four-foot. In this general position the two derailed wheels travelled over the sleepers and ballast until the occupation level crossing (denoted by the letter (*f*) in the description) was reached. Here the leading wheels striking the raised ballast, which forms the roadway, caused the whole fore-end of the coach to jump, and the trailing wheels of the bogie became derailed towards the six-foot way. From this point onwards there are marks of four wheels on the sleepers. The whole train came to a stand about 330 yards further on, and the evidence is to the effect that the coupling between the second and third carriages was found broken, and a space of about 10 yards separated the two vehicles. All four leading wheels of the third coach were standing in the six-foot way, and all remaining wheels on the rails.

The booked times for the train give an average speed of 40 miles an hour between Larbert and Stirling. At the foot of the long decline of 1 in 118 the speed would naturally be considerably in excess of the average speed, and it is, I think, probable that the speed of the train was not less than 50 miles an hour when the first derailment occurred. The super-elevation of the outer rail on a curve with a radius of 100 chains for a speed of 50 miles an hour should, from ordinary formulæ in use, be about  $1\frac{1}{2}$  inches. The actual super-elevation on the down line, as measured by the Company's officers, varies from 2 inches to  $2\frac{1}{2}$  inches. This would be sufficient for a speed of 60 miles an hour, and the want of super-elevation cannot be held, therefore, to be the cause of the derailment.

I gauged the line in the vicinity of the point of derailment, and found it to vary from half an inch more to a quarter of an inch less than true gauge. I also saw the wheel gauge applied to all four leading wheels of the derailed coach with the result that both pairs of wheels were found to be a trifle tight to gauge—not more than  $\frac{1}{32}$  inch. I do not think that these discrepancies from true gauge are sufficient in themselves to account for the derailment, and the evidence of Messrs. Henry and Dobbie shows that a careful examination of the carriage was made after the accident, but that no serious defect as regards axles, axle boxes or wheels was found to exist.

The running rails were found unbroken, and there was no movement of the chairs on the sleepers, or slewing of the sleepers on the ballast. The interlocking of the trailing points with the signal I also found to be correct.

There is, therefore, no conclusive evidence to satisfactorily explain the cause of the derailment, which narrowly escaped having very serious results.

But, whilst I do not feel justified in coming to any definite conclusion, I wish to draw attention to two points in connection with the permanent way.

The first is the weight of the chairs on the down line. These are stated to be 35 lbs. each. On main lines and for heavy traffic at high speeds the Board of Trade does not consider that chairs should weigh less than 40 lbs. apiece, and the tendency of railway engineers is to exceed that figure. I do not, however, think that the weight or size of the chairs had anything to do with this particular derailment.

The second point is maintenance. I observed that the up line, which had been newly relaid or rebalasted, left nothing to be desired in its condition. But I cannot say the same as regards the down line. I watched several express trains travelling over the spot where this derailment occurred, and was struck by the excessive movement of the rails under the weight of each pair of wheels. A joint in the right hand rail, actually at the trailing points, no doubt was in part a source of weakness. The general impression I obtained, however, was that the movement was chiefly due to want of packing under the sleepers. The movement of the rails on the up line when trains were passing could scarcely be detected.

It is possible, in my opinion, that the pair of wheels may have been jerked off the rails by the excessive movement I have referred to. Again, a difference of three-quarters of an inch in the gauge of the rails in the length of a cross-over road does not, I think, speak well for maintenance, though in itself it may not be sufficient to account for a derailment. There appears, therefore, to be room for improvement in the manner the permanent way is maintained.

No blame appears to attach to the enginemen or guards on the train, and the signalman Ogilvie deserves credit for acting with judgment and promptitude.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### APPENDIX.

Damage to Highland Railway Carriage, No. 53.— beam broken ; 3 foot hangers and 1 vacuum pipe  
1 bush keep, 1 tie rod, 1 bogie check chain link, bent ; 1 stay rod and 1 truss bolt damaged.  
2 brake blocks, 1 bogie spiral spring, and 1 cross-

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Printed copies of the above Report were sent to the Company on the 16th September.

## GLASGOW AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
September 14th, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 7th August, the result of my enquiry into the collision that occurred at 7.31 p.m. on July 23rd at Gorbals Junction, a short distance outside St. Enoch's Station, on the Glasgow and South-Western Railway.

In this case, while a goods train was crossing from the down main to the down canal line it was run into by a special passenger train, which was travelling on the down canal line, and which, owing to a mistake on the part of the driver, was not stopped at the Junction signals.

The goods train consisted of an engine and tender, seven loaded waggons, ten empty waggons, and two brake vans.

The passenger train consisted of a four-wheels-coupled bogie engine and tender and 15 vehicles, including a brake van next the engine and a brake third in rear. It was fitted throughout with the automatic vacuum brake, which was in good order.

The passenger train struck the middle waggon of the goods train, causing ten waggons to leave the rails, six of these being slightly damaged. The passenger engine had its buffer beam and side gangway bent, and one buffer and one footstep broken.

Four passengers complained of slight injury.

Several yards of the permanent way were torn up and damaged.

#### *Description.*

There are four running lines at Gorbals Junction signal-box, viz., down and up main and down and up canal lines, and a relief siding, the general direction of the lines being approximately north and south. The down main line is the most westerly; next to it is the up main, then the down canal line, then the up canal line, and lastly the relief siding. The signal-box is situated on the east side of the lines, and close to it there are two double junctions between the main and canal lines, of which one has facing points on the down main and up canal lines, and the other on the down canal and up main lines.

The collision occurred opposite the signal-box, at the fouling point between the down canal line and the crossing from the down main to the down canal line.

The home signals for the junctions are carried upon a bridge which spans all the lines, about 150 yards south of the signal-box. The signals, as seen from a down train, are as follows, reading from left to right:—(1) Down main home, (2) down main to down canal, (3) down canal to down main, (4) down canal home, signals 1 and 4 being high, and signals 2 and 3 being low.

In this case the goods train was travelling from the down main to the down canal line, and the signal (2) for this road was lowered. The passenger train had to pass from the down canal to the down main line, and the signal for this road (3) was at danger, it being rendered, by the interlocking, impossible to lower it. Unfortunately, the driver of the passenger train, seeing the signal (2) for the goods train "off," mistook it for the signal (3) he required, and did not therefore stop his train at the junction signals, with the result that his engine fouled the crossing through which the goods train was running, and collided with the ninth waggon of the latter.

The lines are on a curve of about 15 chains radius, the curvature being to the left, as seen from a down train, and, owing to buildings alongside of the line, the view of the signals is restricted. The gradient of the lines varies from 1 in 100 to 1 in 137, falling towards the north.

#### *Evidence.*

*Andrew Millar*, states: I have been 14 years in the service, all the time a signalman, and in Gorbals Junction cabin about six months. On the 23rd July I commenced duty at 2 p.m. to work till 10 p.m. I have a booking boy to help me. The 6.23 special passenger train from Ayr was offered to me on the canal line from Port Eglinton Junction at 7.26, accepted at 7.26, train on line at 7.27, arrived at 7.31. The goods train was offered to me on the main line from Port Eglinton Junction at 7.28, accepted 7.28, train on line 7.30, arrived at 7.31. It was offered to Clyde Junction on the canal line at 7.30, accepted 7.30, train on line sent at 7.31. The passenger train

ton Junction at 7.26, accepted at 7.26, train on line at 7.27, arrived at 7.31. The goods train was offered to me on the main line from Port Eglinton Junction at 7.28, accepted 7.28, train on line 7.30, arrived at 7.31. It was offered to Clyde Junction on the canal line at 7.30, accepted 7.30, train on line sent at 7.31. The passenger train

was offered to Clyde Junction on the main line at 7.30, accepted at 7.30, "train not coming" signal sent at 7.31. The goods train had to be crossed from main to canal line, and the passenger train from canal to main line. When the goods train was accepted from Port Eglinton, I asked the signalman on the telephone if it was heavy, and he said no. I told him I would run it in advance of the passenger train and he replied "quite right, I have a passenger train following behind it." I recognised the voice speaking to me as that of inspector Campbell. When the goods train came in sight at a very slow rate of speed, I pulled off the home signal for it to cross from the down main to the down canal line, and at that time the passenger train was not in sight. I saw the passenger train when it came into view, but cannot say whether the engine was in steam, but it was running at a slow rate of speed, and I had no suspicion at that time that it would overrun the home signal. When I saw that the driver of the passenger train had not stopped at the home signal, I went to the window and blew my whistle, and signalled him with my hands to stop. I made no attempt to stop the goods train, as the driver seemed to realise the situation by putting on more steam for the purpose of getting clear, and he also sounded the whistle to attract the attention of the passenger driver. The passenger train was running at about 10 miles an hour. It was daylight at the time of the accident and the signals were clearly visible.

*John Green*, states: I have been about 18 months in the service as cabin boy, and about 3 months in Gorbals Junction cabin. On the 23rd July I commenced duty at 2 p.m. to work till midnight. We work two hours extra on the afternoon shift. I inserted the block signals received and sent in connection with the 6.23 p.m. passenger train ex Ayr, and 5.45 p.m. goods train ex Greenock. I corroborate signalman Millar's statement, regarding the attempts he made to attract the attention of the driver of the passenger train.

*James Garry*, states: I have been 15½ years in the service, 11½ years as goods guard. On the 23rd July I commenced duty at 10.15 a.m. to work till 7.30 p.m. I was guard of the 5.45 p.m. goods train from Greenock to Glasgow (College), leaving the former station at 5.50, engine No. 161, driver John Nichol. We left Shields Junction, the last booked stopping place at 7.25 p.m., the train consisting of seven loaded and 10 empty waggons, and two brake vans in rear. When passing through Eglinton Street Station, I saw a passenger train standing at the station on the down canal line. The down advance signal for Port Eglinton, situated at the east end of Eglinton Street platform, was off for my train when I passed it. I was looking out on the inside of the curve for the home signals on the bridge at Gorbals Junction, but before I sighted them, the engine and part of the passenger train on the down canal line had passed me. As my driver was not preparing to stop at the home signal, and knowing that my train had to be put across from main to canal line at Gorbals to get to College, I was suspicious that something was wrong, but on coming in view of the signal bridge, I saw that the signal was off for my train, and the signal for the passenger train on the canal line was at danger. At the same time I saw that the passenger train was not stopping at the home signal, and seeing what was likely to happen, I jumped out of my van and called on my mate in the other van to do likewise. The passenger engine

struck the ninth waggon from front and rear (the middle vehicle on the train), causing nine waggons to leave the rails. The passenger train was almost at a stand when the front of the engine came in contact with my train. My driver saw what was going to happen, and he put on more steam, and I heard him sound the whistle just before the collision took place. Immediately after the accident I spoke to the driver of the passenger train, and he said he had mistaken the signal, and asked me why I had not warned him, and I replied that he had passed me before I saw the signals.

*James McGovern*, states: I have been in the service about 25 years, 10 years as engine driver, and passenger driver during the summer months the last two years. On the 23rd July, I commenced duty at 5.20 p.m. to work till 12 midnight. My engine is No. 83, four wheels coupled, leading bogie and six-wheeled tender. The engine is fitted with vacuum brake acting on the four coupled wheels, and all the wheels of the tender. I worked the 6.23 p.m. relief passenger train from Ayr to St. Enoch, which consisted of equal to 16 vehicles all fitted with the vacuum brake, the brake being properly connected throughout the train. I left Ayr at booked time and had a good run to Paisley (canal), the first booked stop, and thence to Eglinton Street where tickets are collected. After starting from Eglinton Street, I saw the down advance signal for the canal line at Eglinton Street was off. On sighting the down home signals at Gorbals they were all at danger, but on sounding the whistle one of them was lowered, which I read as my signal to cross from down canal to down main line. After leaving Eglinton Street I had not shut off what little steam was applied to the engine. I first realised that I had made a mistake, when I saw the signalman at Gorbals Junction on the balcony signalling me with his hands to stop. I at once shut off steam, applied the brake, and reversed the engine, but failed to stop by about a yard clear of the crossing from the down main to the down canal line. When steam was shut off the speed of my train was about 10 miles an hour, and at the time of the collision my train was almost at a stand. The waggons of the goods train caught the left hand corner of the buffer beam which was bent inward, the sand box was torn off, and side gangway and foot step were damaged. My engine and train kept the rails, and none of the coaches were damaged. A coupling of the goods train parted and the rear portion stopped. I saw the goods train on the main line, but did not observe that it was crossing to the canal line. I was on the right hand side of the foot-plate, and the curve and the boiler together prevented me having a good view ahead. I did not hear the driver of the goods train sound his whistle. The continuous brake was in good order, and the gauge shewed 20 inches when I left Eglinton Street. I am acquainted with the road and the fixed signals, having often run both passenger and goods trains over the line. It is an unusual thing for a goods train to be crossed in front of a passenger train.

*James Nelson* states: I have been about four-and-a-half years in the service, and about three years a fireman. On the 23rd July my hours of duty were the same as McGovern's. The driver's statement has been read to me, and it is correct. When approaching the home signals at Gorbals Junction I was putting on the injector, and did not look at the signals. After getting the injector to work, I looked ahead on my side, which was



the inside of the curve, and saw the goods train crossing in front about 20 yards distant. I shouted to the driver, but he had evidently seen the danger before me, as steam was shut off, and he was in the act of applying the brakes. After the train stopped I looked back, and saw the home signal off for the goods train to cross from the main to the canal line.

*James Paterson* states: I have been 13 years in the service, 12 years as signalman, the last four years as relief signalman and passenger guard. On the 23rd July I commenced duty at 8 a.m. to work till 9.30 p.m., two hours off for meals. I was guard of the 6.23 p.m. special passenger train from Ayr to St. Enoch's Station, which consisted of engine No. 83 and 15 vehicles, equal to 16, marshalled as follows from the engine:—One brake van, six ordinary third-class, one bogie third-class, and four ordinary third-class carriages, the rear carriage having a brake compartment in the centre—all six-wheeled stock except the two bogie carriages, which had eight wheels, and the brake van four wheels. We started from Ayr at booked time, the train being well filled with passengers. The first booked stop was Paisley (canal), arrived 7.14, departed 7.15, Eglinton Street arrived 7.27, departed 7.30. After starting from Eglinton Street one minute late I saw that the advance signal at the east end of the platform was off, but owing to the length of the train and the curve I could not see the home signals at Gorbals Junction until the train stopped. When the driver applied the brake I looked out, and then saw the goods train, and realised what was likely to happen. I felt no shock in the van, and on going forward I met the guard of the goods train. None of the passengers complained of being shaken or injured. I then went back to the Eglinton Street platform, and asked the foreman to send a man back to the Port Eglinton Junction cabin to tell the signalman what had happened, and some of the platform staff accompanied me back to the train, when we had the passengers conducted back to the station. No part of my train left the rails, and none of the carriages were damaged. Later on I spoke to the driver about the accident, and he told me he had taken the wrong signal. My train was fitted with the vacuum brake, which was in good order. There was 21 inches of vacuum when we left Eglinton Street Station. When the driver applied the brake my train was travelling at about 15 miles an hour, but it had

nearly come to a stand before the collision took place.

Statement made by *John Nicol*, driver, to the locomotive foreman: I am 41 years of age, have been in the Company's service 23 years, and a driver for the last nine years. On the 22nd inst. I went off duty at 9.30 p.m., and on the 23rd came on duty at 9.30 a.m., and went off duty at 9.20 p.m. I was driver of the 5.45 p.m. goods train, Greenock to College, and on leaving Shields Junction my train consisted of seven loaded waggons next the engine, and ten empty waggons, and two brake vans in rear. When passing through Eglinton Street on the down main line, I saw a passenger train standing at the station on the down canal line. On coming in view of Gorbals Junction home signals one of them was clear for me. This was the one for leading off the line on which my train was travelling through the junction on to the down canal line, and consequently I allowed the train to go forward. When nearing the Junction, I heard some person whistling, and I looked ahead very particularly to see if it applied to me, but saw nothing in front of me. I then looked towards the signal cabin, and saw the signalman signalling to something behind me, and on looking round saw the passenger train approaching, and realising that a collision was likely to occur, and with the view of trying to avert same, I gave my engine more steam to try to get out of the way, but failed. When the collision occurred my train became divided, leaving two waggons attached to the engine. These were not derailed, neither were any of the five immediately behind them, but the ten empty waggons in rear of train were all derailed. I cannot say at what part of my train the passenger engine caught, but it must have been behind the seven loaded wagons which were nearest to my engine, as neither of them were off the rails or damaged.

[N.B.—This man was unable to attend my enquiry owing to ill-health, but the above statement was handed to me.—H. A. Y.]

*Alexander Wills*, fireman, states: I have been in the Company's service about three years, and I have been fireman two years. On the 23rd July I came on duty at 9.45 a.m. to work, and I went off duty at 9.20 p.m. I was firing for John Nicol, who is not here to-day, as he is unwell. I have heard the engine driver's statement read, and I agree with it.

### Conclusion.

This collision was due to the mistake made by driver James McGovern, who had been on duty about 2½ hours, as to the signal which was lowered. His statement on the subject is explicit and straightforward, and the responsibility rests with him. There is, however, this to be said in his favour, (1) that it is unusual to allow the goods train to cross the lines in front of the passenger train, the precedence being as a rule given to the passenger train; and (2) that the signals on the bridge are not arranged in groups corresponding with the lines to which they respectively refer, but are placed as close together as possible, so that there is nothing to assist a driver in distinguishing the signals belonging to the down main line, from those belonging to the down canal line. For these reasons, I do not think that this man's error should be severely regarded. Fortunately, signalman Andrew Millar detected the driver's mistake in good time, and succeeded in attracting McGovern's attention to it. As soon as the latter realised what he had done, he did his utmost to stop his train, in which attempt he was nearly successful, the speed at the time of the collision being very low.

I consider that fireman James Nelson of the passenger train is deserving of censure for attending to the injector, instead of assisting his driver in looking out for signals at

such a time. Had he exercised ordinary care and intelligence, it should not have been necessary for him to attend to the injector at this busy place.

The system of working adopted at this place, whereby one train is allowed to foul the junction, while another train is running up to the junction signals is not in accordance with the block rules.

I was informed by the superintendent of the line, that owing to the congestion of traffic outside St. Enoch's Station, it is impossible to adhere strictly to the block rules for junction working, as to attempt to do so, would result in delay to the trains and dislocation of traffic. Under these circumstances, some relaxation of the rules appears to be unavoidable. It should, however, be pointed out that the Company have not obtained from the Board of Trade any exemption from block working at this place, which it is usual to grant in such cases, their application for such exemption having apparently been withdrawn in July 1900. The attention of the Company should, I submit, be directed to the matter.

I also recommend that the junction signals be arranged in groups, so that the signals of each line can be readily distinguished from those of other lines. This arrangement is specially to be desired at a place where the conditions are such as described above.

I have, &c.

H. A. YORKE,  
*Lieut.-Col., R.E.*

The Assistant Secretary,  
Railway Department, Board of Trade.

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Printed copies of the above Report were sent to the Company on the 4th October.

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## GREAT WESTERN RAILWAY.

Railway Department (Board of Trade),  
8, Richmond Terrace, Whitehall, London, S.W.,  
20th October 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 20th September, the result of my Inquiry into the circumstances under which a collision occurred at about 7.15 p.m. on the 19th September, near Westbourne Park Station, on the Great Western Railway, between a passenger train and a light engine.

In this case, when the 11 a.m. up Cornish Express from Penzance to London, consisting of an engine, tender, and nine vehicles, had just passed through Westbourne Park Station on the up main line, it came into collision with a light engine which was standing on that line.

The train was travelling at the time at a speed of about 30 miles an hour, so the shock of the collision was considerable, and the driver of the light engine received serious injuries to which he succumbed in the course of a few days. Both the driver and fireman of the passenger train were also slightly injured.

The two engines ran on locked together for about 100 yards before coming to a stand; they were both severely damaged.

The shock of the collision caused the train to part behind the tender, and the rear portion at once came to rest, the front four wheels of its leading vehicle being derailed, and seven of its vehicles being slightly damaged.

It is understood that none of the passengers of the train were seriously hurt, though a large number of complaints have been received by the Company of slight personal injuries sustained.

The engine of the passenger train was a single driving wheel tender engine, fitted with a steam automatic brake working blocks on four wheels of the engine and on the tender wheels, and with a hand brake working the blocks on the tender wheels.



The train consisted of the following vehicles attached to the engine in the order given :

							Wheels
One 2nd-class brake	...	...	...	...	...	...	8
Two composites	...	...	...	...	...	...	8
Three 3rd-class carriages	...	...	...	...	...	...	8
One brake third	...	...	...	...	...	...	8
One composite	...	...	...	...	...	...	8
One 3rd-class saloon	...	...	...	...	...	...	6

The carriages were all fitted with the vacuum automatic brake working blocks on all wheels of the train except on the centre pair of wheels of the last vehicle.

The light engine was a similar one to that of the passenger train and was fitted with the same brakes.

Details of the damage to the rolling stock and permanent way are given in the appendix.

#### *Description.*

Westbourne Park Station lies approximately east and west, and has four lines of rails running through it. It has up and down platforms on its north and south sides respectively, and an island platform lying between them.

The four lines of rails running through the station are arranged in the following order, commencing from the north side of the station.

Up Relief Line.  
Down Relief Line.  
Up Main Line.  
Down Main Line.

This accident is solely concerned with the up main line, which runs alongside the south side of the island platform.

There is a signal-box, known as the Green Lane box, at the east end of the station, situated just to the north of the up main line. The next signal box in the up direction is the Subway Junction signal box, distant 462 yards from it, whilst the next box in the down direction is the Portobello Junction signal box, distant 374 yards from it.

At a point 153 yards to the eastward of the Green Lane box there is on the up main line a trailing connection which crosses the up and down relief lines and leads into a locomotive yard lying to the north of the main line. A disc signal worked from the Green Lane box is provided for backing from the up main line through this connection. The light engine concerned in this collision was standing just ahead of this connection, waiting for the disc signal to be given for it to enter the locomotive yard, and it was at this point that the collision occurred.

The Green Lane box up main line home signal is situated at the east end of Westbourne Park Station, 25 yards to the westward of the signal box, and its distant signal is under the Portobello Junction home signal, 374 yards distant. On account of the short distance between the Green Lane box and the Subway Junction box, the former is not provided with any up main line starting signal ahead of its home signal ; when, therefore, trains pass the home signal, they enter the next block section.

Owing to the shortness of the block sections on each side of the Green Lane signal box the Company have a rule that no up train should be accepted by the signalman in the Green Lane box until it has been first offered to and accepted by the signalman in the Subway Junction box.

But amongst the Company's special rules for the Green Lane signal box is the following :

"Light engines signalled on the up line with the special code of five beats (2 pause 1 pause 2) must be stopped dead at the up home signals, and before allowing such engines to pass the Green Lane signal box, the signalman must ascertain from the enginemen if the engines are proceeding to the shed, in which case the 'Is line clear' signal need not be sent forward."

#### *Evidence.*

*George Rowland Ellis*, fireman, states : I have been about eight years in the service of the Company, during over six years of which I have been a fireman. I came on duty on the 19th

September at 7.45 a.m. to work till 5.30 p.m. On this day, however, I had to do an extra trip, viz., to take some empty carriages from Paddington to West London before leaving duty. I had come

off duty the previous day at 4.45 p.m. At the time this accident occurred my engine was running light. We had left the empty carriages at West London, and we were returning to shed, so that if the accident had not occurred, we should have come off duty at about 7.30 p.m. Driver Beames was working the same hours as me on that day. My engine got on to the up main line at Ladbroke Grove, and we ran from there on the up main line to Westbourne Park. We were checked at Portobello Junction, but we did not actually come to a stand there. When we passed Green Lanes distant signal it was against us. The Green Lanes home signal was however "off" for us, and we ran past it. When passing through Westbourne Park Station the speed was checked, so as to allow a porter guard to get off the engine, and we then ran on and came to a stand on the up main line just clear of the points leading to the engine shed. I believe this was about 7.12 or 7.13 p.m. As I passed the Green Lanes signal-box, I shouted out to the signalman "shed," but I cannot say for certain whether he heard me. After I had shouted out to him I saw him go to the front of his box and communicate with somebody on that side. I saw there were some engines standing on the road leading to the engine shed, so that I knew he could not admit us while they were there. When we came to a stand there was an empty train of coaches standing at the Green Lane home signal on the down relief line, and I think that the signalman was waiting until that train had passed on. The first thing that took place after I came to a stand on the up main line was, that this train of empty coaches passed along the down relief line clear of the connection to the locomotive shed. At the same time a light engine came out of the locomotive yard and went along the up relief line. When these two operations had taken place, I thought that the line would be set for us to go into the locomotive yard, and I was watching to see the points move. At that time I think we had been at rest between three and a half and four minutes. I was standing on the left-hand side of the engine. I was looking at the points myself, and my mate was looking out the other side to see his signal. While I was looking out I saw the head light of the engine of a train running through Westbourne Park Station on our line. I at once shouted out to my mate "look out he has loosened the Cornishman into us," and at the same time I put the reversing lever into forward gear, and opened the regulator. I did it myself in order to save time, as I saw that I could do it quicker than my mate. I cannot say what my driver did. Almost simultaneously with my turning on steam the collision occurred, but my engine was already moving before the collision occurred. We were forced forward and eventually came to rest near the subway junction box. I myself was not injured, I was only shaken. I then searched for my mate, and found him lying face downwards in the tender. As soon as I recovered from the knock, I turned off steam and applied the brake. I think it was between three and a half and four minutes between the time we came to rest and the time the collision occurred. I have several times before been on an engine entering the locomotive yard from the up main line, in the same way as we did on this occasion. I have often been brought to a stand at this point to let trains pass. I cannot say whether I have ever been kept so long before. I am aware of the rule that when a train is waiting to be let into a siding, the fireman should go back to the signal-box and remind the signalman of the position of the train, but I did

not go back on this occasion. My reason for not doing so was, that I saw that the signalman could not let us back along the connection leading to the locomotive yard, and also because the time was so short. I have never on any previous occasion when stopped at this point gone back to warn the signalman. I am sure that the Green Lane home signal was off for us when we entered Westbourne Park platform. My engine was a 7-foot single driving wheel tender engine. We were running chimney first. It was fitted with steam brake working blocks on the driving and the trailing wheels of the engine, and on the six tender wheels, and with a hand brake working blocks on the tender wheels. My brakes were in good order. Before leaving the carriage sidings I had fixed a red light at the end of my tender, and as far as I know it was there at the time the collision occurred. It appeared to me to be burning properly.

*Edwin Clarke Lane*, driver, states: I have been in the service of the Company 40 years, during 30 of which I have been driver. I came on duty on the 19th September at 9.32 a.m. to work till 7.30 p.m. I came off duty on the 18th September at 9 p.m. On the 19th September I was driving the engine of the Cornish express, having joined the train at Bristol. My engine was a 7 foot 8 inch single driving-wheel tender engine, running chimney first. It was fitted with an automatic steam brake, working blocks on the driving and on the trailing wheels and on the tender wheels, and with a hand brake working blocks on the tender wheels. My brakes were all in perfect order. We were about 18 minutes late in leaving Bristol, and we were still about 18 minutes late when I reached Westbourne Park. At Ladbroke Grove I had checked speed, and we ran through Westbourne Park at a speed which I estimate at slightly under 30 miles an hour. At Portobello Junction all the signals were off for me, including the distant for Green Lane Junction. At Westbourne Park Station the home signal was off for me, so that I still ran on, though I was still slightly checking the speed. I received no warning whatever of there being any obstruction on the line in front of me. I think that I did see a light in front of me, but I had no idea that it was on the line on which I was running. The reason why I did not see the light before we actually hit the light engine, was that I was looking at the signals. I did not, however, see anything in front of me in time to take any steps to stop the train, and we were still going between 25 and 30 miles an hour when the collision occurred. My arm was sprained by the collision, and my fireman was slightly injured also. At the time of the collision the steam was entirely turned off, it having been turned off at West London Junction. At the time of the collision I was just pulling the brake off, but after the collision I found that the lever was fully over, so that I must have pulled it over, though I do not remember doing so. My engine came to rest close to the subway box. At that time my engine had parted from the train some distance back, and the rear portion of the train had come to rest. I have been in the habit of running along the up main line for a great many years. It is not unusual to be stopped at Westbourne Park by signals.

*John Brookes*, fireman, states: I have been in the service of the Company 10½ years, during six of which I have been a fireman. On the 18th and 19th of September I was working the same hours as driver Lane, and I was with him on the Cornish express on the 19th September. I remember in passing Portobello Junction all the

signals were off for us including the distant for Green Lane. As soon as I came in sight of Green Lane home signal, I saw that it was off for us. We had checked speed at Ladbroke Grove to about 30 miles an hour, and it was at that speed that we ran through Westbourne Park Station or possible a little less. I knew nothing about there being anything on the line in front of us until the collision actually occurred. I did not see any lights in front of us. I was looking out at the time, but my attention was chiefly on the signals. Steam was turned off at the time, it having been turned off at West London Junction. My mate was just blowing the brake off at the time the collision occurred. My right thumb was sprained by the collision. As soon as I had seen that the signals were right for me I was applying the hand brake to steady the train, and I was holding on to the handle at the time the collision occurred.

*William Hocking*, head guard, states: I have been in the service of the Company 30 years, during 20 of which I have been a guard. I came on duty on September 19th at 10.30 a.m. to work till 7.30 p.m. I had come off duty on the 18th at 9.30 p.m. I was guard of the up Cornishman on the 19th September, having joined the train at Penzance. My train consisted of the following vehicles attached to the engine in the order given:—

	Wheels.
1 second-class brake ... ..	8
2 composites ... ..	8
3 third-class carriages ... ..	8
1 brake third ... ..	8
1 composite ... ..	8
1 third-class saloon ... ..	6

These carriages were all fitted with the automatic vacuum brake, working blocks on all the wheels of the carriages except the centre wheels of the one 6-wheeled vehicle. The brakes were all in good order. At the time of the collision we were running at about 18 minutes late. Our speed at the time of the collision was, I should say, between 20 and 30 miles an hour. As we passed through West London I had slightly applied my hand brake, and our speed had been checked, and I noticed as I put my brake on that the driver had applied his also. I was watching the signals as we passed through Portobello Junction, and they were all off for us. I did not, however, notice the signal at Westbourne Park Station. The first I knew of the collision was feeling the shock of it. We were then slackening up speed. The front four wheels of the leading vehicle of my train were derailed, but otherwise the rest of my train was standing on the rails. The train had parted between the tender and the leading vehicle, and my train came to rest with the leading vehicle about 100 yards west of the Subway Junction box. I was riding in the rear composite of the train. The tail of my van came to rest under the gantry carrying the signals of the Green Lane box. Two or three passengers complained to me of having been slightly injured.

*Frederick Gadsby*, signalman, states: I have been in the service of the Company about 11 years, between six and seven of which I have been a signalman. I am employed in the Green Lane signal-box, where I have been for the last six or seven weeks. I came on duty on September 19th at 2 p.m. to work till 10 p.m. I had come off duty at 10 p.m. the previous day. On the evening of the 19th I remember a light engine being offered to me from Portobello Junction. It was offered to me at about 7.10 p.m. The signal told me that it was a light engine for the shed. I

accepted it at once with "line clear," and soon after I lowered my signals for it. I did not lower the distant signal for it, but I did lower the home signal. I did not offer this light engine at all to Subway Junction. When a light engine is running to shed we have no instructions to offer it to Subway Junction box. There is a local rule to the Green Lane signal-box, that if engines are proceeding to shed, the "is line clear signal" need not be sent forward. It was in accordance with this rule that I did not offer the "is line clear" signal to Subway Junction box for this light engine. The same rule states that light engines are to stop dead at the up home signal. That was not done in this case. The reason for not doing so was that I wished the engine to go to shed as quickly as possible. The light engine ran through the station without stopping and passed my box. It came to a stand just over the points leading to the locomotive yard. I saw it come to rest there. I could not cross the light engine into the locomotive yard at once, because there were three engines waiting to go up to Paddington. I knew that the first engine was for the 7.30 p.m. train. I asked the second one what he was for, and he said he was for the 7.40. I knew that there was a 7.35 excursion train, and I at once whistled to the yard foreman to ask him where the engine of that train was. I could not get any explanation from the yard foreman about the engine of the 7.35 excursion, so I had the 7.30 engine uncoupled from the other two, and sent it forward along the up relief line. At the same time I accepted the coaches on the down relief line, and I then allowed the empty train to run down the down relief line. We do not take the times in the Green Lane box, so that I cannot say exactly what the time was when the light engine came to rest. About the time the empty train was running down the down relief line, I was offered the Cornishman by Portobello Junction. I at once offered it to Subway Junction, and he accepted it at once. I then accepted it from Portobello Junction. I did this in forgetfulness that the light engine was standing on the up main line, and I explain my forgetfulness by the fact of my having had this conversation with the locomotive foreman about the 7.35 engine. I admit that my mistake was the cause of the accident. It is not unusual for engines to enter the locomotive shed in the same way that this light engine was doing, viz., from the up main line. Every night some engines do the same thing. I am acquainted with the rule, which says that when trains are kept waiting to be let into a siding, the fireman should return to the signal-box to remind the signalman of the position of the train. This was not done on this occasion. Since I have been employed at this box no fireman has ever been sent back in accordance with this rule. I had not recognised that the rule had been neglected, I had really forgotten about the rule. Immediately after giving "Line clear" for the Cornishman I lowered my signals for it. I remember that there was a light at the rear of the tender of the light engine, it was a red light. As far as I remember, the light engine was standing on the up main line between three and four minutes before the collision occurred. I had a clear view of it from my signal-box. I did not look up the line before accepting the Cornishman, though I admit that I ought to have done so. The bulk of the engines for the locomotive shed go either along the goods loop, or come up the up relief line, but there are always a few every day that run up the up main line. As a rule, when engines are entering the locomotive yard from

the up main line, they are backed at once across the connection leading to the locomotive yard without any delay at all, and it is unusual for an engine to be delayed as long as this light engine was delayed.

*Charles Cook*, signalman, Portobello Junction, states : I have been in the service of the Company 19 years, during 18 of which I have been a signalman. I came on duty at 2 p.m. on the 19th September to work till 10 p.m., and I had come off duty at 10 p.m. the previous day. At 7.8 p.m. I offered a light engine to Green Lane box, and it was accepted at once. It ran past my box at 7.9 p.m., and at 7.10 I received the "Train out of section" signal for it from Green Lane box. At 7.11 p.m. I offered the Cornishman to Green Lane Junction, and at 7.12 he accepted it. At 7.15 p.m. it ran past my box. At 7.15½ I received the "Train out of section" signal for it from Green Lane box.

*George Davies*, signalman, states : I have been

in the service of the Company nearly 30 years' and I have been a signalman at Subway Junction for 24 years. I came on duty on September 19th at 2 p.m. to work till 10 p.m., and had come off duty on the previous night at 10 p.m. I know nothing about a light engine entering the section between Green Lane box and my box on the evening of that day. No light engine was offered to me. It is not customary for engines, which run past Green Lane box with a view of getting into the locomotive yard, to be offered to me. I do not know of any rule on the subject, but it is never done. At 7.13 p.m. the Green Lane box offered me the Cornishman, I accepted it at once, and at 7.15½ p.m. I received the "Train entering section" signal for it. It was very shortly after I had received the "Train entering section" signal that I heard the collision occur. I had received at 7.13 p.m. the "Train out of section" signal from Green Lane box for a train of empty coaches on the down relief line. A light engine also arrived at my home signal on the up relief line at 7.14 p.m.

### Conclusion.

From the above evidence it is clear that this accident was mainly due to the fact that signalman Gadsby, who was on duty in the Green Lane signal box, allowed the express passenger train to pass his box on the up main line in forgetfulness that there was already a light engine standing on that line in the section between his box and the Subway Junction signal-box.

This light engine, which was running to the locomotive yard, had been admitted by signalman Gadsby into the above-named section on the up main line at about 7.10 p.m., and it had been brought to a stand just ahead of the connection leading from that line to the locomotive yard, with the view of its being backed through that connection into the yard. In this position it was, it should be remarked, well within Gadsby's view from his box.

Owing to the rule quoted above, viz., that light engines for the locomotive yard may be allowed to pass the Green Lane box without being offered to the signalman in the Subway Junction box, Gadsby had not offered this engine to signalman Davies, who was on duty in the last-named box, and Davies consequently knew nothing of its having been admitted into the section.

Gadsby was unable to at once set the road for the light engine to run into the locomotive yard ; he had first to deal with a train which was passing on the down relief line, and then with some engines which were running from the locomotive yard up to Paddington, and he was further occupied in making enquiries about another engine which he knew was also due to run up to Paddington. The result was, as he himself honestly admits, that he entirely forgot that the light engine was standing in the section, and when at 7.12 p.m. he was offered the express passenger train from the Portobello Junction box he at once passed it on to the Subway Junction box ; it was forthwith accepted by the signalman at the latter box, who, as pointed out above, knew nothing of the presence of the light engine in the section, and it was then accepted by Gadsby, who at once also lowered his signals for it.

The express train consequently, on approaching Westbourne Park, found both the distant and home signals for the Green Lane signal box lowered for it, and it accordingly ran through Westbourne Park Station at a speed of about 30 miles an hour.

The signals at this point of the line are very close together, and the driver and fireman of the express train both state that, though they were keeping a good look-out, their attention was almost entirely devoted to looking for their signals, and consequently neither of them saw the light engine in front of them until the collision actually occurred.

The driver of the light engine was watching his disc signal, and he does not appear to have seen the express train approaching at all, but fireman Ellis did see it, and he acted with great promptitude, putting the reversing lever into forward gear and opening the regulator. The light engine was consequently just moving forward at the time that the accident occurred, and the effect of the collision was undoubtedly lessened thereby.

Signalman Gadsby candidly admits that his forgetfulness was the cause of this accident, for which therefore he must be held mainly responsible.



## GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
October 22nd, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 1st October, the result of my enquiry into the circumstances under which an accident occurred to the engine of a passenger train at about 6 p.m. on the 25th of September, near Templeton Station on the Great Western Railway.

In this case, when the 5.21 p.m. down passenger train from Whitland to Pembroke Dock, consisting of an engine and eight vehicles, had just passed through Templeton Station, the axle of the leading pair of engine wheels broke.

The driver of the engine judged from the noise which he heard that something had gone wrong, so he at once applied his brakes and brought his train to a stand. All the wheels of the engine were found to be still on the line, and it was not until more than half an hour after the accident occurred that the breakage of the axle was discovered.

None of the vehicles of the train were damaged nor were any of the passengers injured, but, owing to the line being a single one, considerable delay was caused to traffic.

The engine of the train was a six-wheels-coupled tank engine, running chimney first; it was fitted with a steam and hand brake working blocks on the six coupled wheels. The engine weighed 43 tons 12 cwt., the weight being distributed as follows: 15 tons 4 cwt. on both the leading and driving wheels, and 13 tons 4 cwt. on the trailing wheels.

The train consisted of the following vehicles attached to the engine in the order given:

	Wheels
1 brake third ... ..	8
1 tri-composite ... ..	8
1 third-class brake ... ..	8
2 third-class carriages ... ..	6
1 third-class carriage ... ..	8
1 composite ... ..	8
1 second and third brake ... ..	8

All these vehicles were fitted with the vacuum automatic brake working blocks on 56 wheels of the train.

The brakes are all reported to have been in good order.

The damage to the permanent way was nil; that to the engine consisted of the following:—

- 1 axle broken.
- 1 coupling rod broken.
- 1     "     "     bent.
- 1 hanger bent.

*Description.*

Templeton Station, near which this accident occurred, is a station on the Great Western Railway branch line between Whitland and Pembroke Dock. This branch line was formerly the property of the Pembroke and Tenby Railway Company, but was taken over by the Great Western Railway Company in 1896.

The line is a single one, and down trains run through Templeton Station in a direction which is almost exactly from North to South. The station has only one platform, which is on the west side of the line; the only connection to the main line near this station is a siding connection, situated about 130 yards to the south of the south end of the station platform; this connection, which is trailing to down trains, is worked from a small ground frame locked by a key on the electric staff of the section. It was close to this point that the breakage of the axle appears to have occurred.

I am informed by the Company that this branch line has been almost entirely relaid since it was acquired by them in 1896, new rails, chairs and sleepers having been provided since that date. It bears marks of having had much work recently bestowed on it, and after a personal inspection of the line I have no hesitation in saying that it is at the present time in excellent order.

The gradient for a down train approaching Templeton Station is a rising one up to a point just over a mile and a half distant from it; at that point the gradient changes, and it is then a falling one of about 1 in 50 till close to the station; through the station itself the gradient is a falling one of 1 in 265, and immediately to the south of the station it again falls at 1 in 52. It was near the commencement of this latter gradient that the break appears to have occurred.

The line when approaching Templeton Station from the north is on a left hand curve of 20 chains radius, but it runs quite straight through the station itself; immediately after passing the station there is a short length—6 chains—of gentle right-handed curve of 52 chains radius, and the line is then straight for rather over a quarter of a mile. The break appears therefore to have occurred either on the straight or on the gentle curve to the right.

### *Evidence.*

*Thomas Jones*, engine driver, states: I have been 39 years in the service of the Company during about 28 of which I have been an engine driver. I came on duty on the 25th September at 11.30 a.m. to work till 8.15 p.m. I came off duty on the previous day between 6.0 p.m. and 7.0 p.m. I was the driver of the 5.21 p.m. passenger train from Whitland to Pembroke Dock. My engine was a six-wheels-couple saddle tank-engine, running chimney first. The engine was fitted with the automatic steam brake working blocks on all six wheels, and the handle of the steam brake applied the automatic vacuum brake to the train. My brakes were in very good order. I had previously worked a goods train from Pembroke Dock to Whitland on that day with this same engine. I had had no trouble at all with the engine and as far as I knew the engine was in first rate order. I had arrived at Whitland with the goods train at about 5.20 p.m.: I then put the goods train away. I was ordered to turn my engine which I did, and then took water and oiled my engine and then coupled on to the 5.21 passenger train. We left Whitland at about 5.35 p.m. The only station which we stopped at before the accident occurred was Narberth, and up to that point I had noticed nothing wrong with the engine. We left Narberth at about 5.50 p.m. I think that we ran through Templeton Station at a speed of about 20 miles an hour. The first time that I noticed anything wrong with the engine was when we were running through the trailing connection on the down side of Templeton Station. At this point I heard the engine give a sort of a knock. At first I did not think anything of this as I thought it was simply caused by running through points. I then heard a second knock and thinking that something might be wrong I at once applied the brake slightly. I then heard a third knock and I saw stones flying about, so I then at once applied my brake fully and brought the train to a stand as quickly as I could. I had turned off steam at about one-and-a-half miles before reaching Templeton Station and had not turned it on again before the time of the accident. My brake acted very well and my engine was brought up I should say in between 200 and 250 yards. I at once got down and went along the right hand side of my engine. I saw that the right hand outside coupling rod was bent. I then went round to the other side of the engine and saw that the left hand coupling rod was also broken. It was broken close to the crank of the leading wheel, and the portion attached to the driving wheel was bent and the end of this portion was bearing on the rail. At this time I did not notice that the leading axle was broken. I at once tried to

remove the outside coupling rods and I did so. In removing the short piece connected to the leading wheel I discovered that the axle of the leading wheel was broken. This was about 6.40 p.m. The axle was broken close to the left wheel. Both wheels on the leading axle were on their proper place on the rail and the axle was still held up horizontally, but I could see daylight between the end of the axle and the boss. They were not a long distance apart, I should say not more than from a quarter to half an inch. I at once wired to Tenby to report what had happened. I knew the engine very well indeed and I had been working with it about two years. I never had any trouble before with it and I was thoroughly satisfied with the condition of the engine. The engine had been washed out on the previous Sunday, but no examination of the axles takes place when the engine is washed out. I believe that the engine was lifted and the axle examined about twelve months ago but of this I am not sure. No damage was done to the train with the exception of that suffered by the engine and none of the train was off the rails. I always examine my engine before starting on a journey and if I found anything wrong in it I should at once report it.

*Phillip James Gunter*, fireman, states: I have been about three-and-a-half years in the service of the Company, during a little more than two of which I have been a fireman. On the 24th and 25th of September I worked the same hours as driver Jones and on the 25th I was with him on the engine of the 5.21 p.m. train from Whitland to Pembroke Dock. We had previously come on the same engine from Pembroke Dock and I had noticed nothing wrong or unusual with the engine. When we were passing through the connection at Templeton Station I heard three knocks and I thought that something must have gone wrong. When we heard the second knock I saw the driver apply the brake but after we heard the third knock the driver applied it fully and brought us to a stand. I myself applied the hand-brake. Steam had been turned off at a distance of more than a quarter mile from Templeton Station and it had not been turned on again before the time the accident occurred. Our engine was brought to a stand in about 200 yards. I got down, examined the engine and found that the left hand coupling rod was broken. I went off to fetch an assistant engine and during my absence the breakage of the axle was, I believe, discovered. My driver and I had both looked round the engine that day and neither of us found anything wrong with it. I had often been on that engine before, it was our regular engine and



I knew it well. As far as I was aware it was all in very good order and I was quite satisfied with its condition.

*William Francis*, guard, states: I have been 31 years in the service of the Company, during 27 of which I have been a guard. I came on duty on the 25th September at 10 a.m. to work till 9.10 p.m. I came off duty on the previous day at 9.15 p.m. I was guard of the 5.21 p.m. passenger train from Whitland to Pembroke Dock. My train consisted of the following vehicles, attached to the engine in the order given:—

	Wheels.
1 brake third ... ..	8
1 tri-composite ... ..	8
1 third-class brake ... ..	8
2 third-class carriages ... ..	6
1 third-class ... ..	8
1 composite ... ..	8
1 second and third-class brake ... ..	8

I myself was riding in the rear brake van. My train was fitted with the automatic vacuum brake working blocks on all the wheels of the eight-wheeled stock, and on four wheels of the six-wheeled stock. The automatic brake was in perfect order. We left Whitland at 5.35 p.m. and stopped at Narberth Station. Up to that point nothing unusual occurred with the train. The first I knew of anything having gone wrong was hearing the driver whistle for the brake. This was when the brake van in which I was riding was passing through Templeton Station. Our speed at that time was I think about 20 or 25 miles an hour. Previous to the driver's whistle I noticed that the brake had been slightly applied. When the driver whistled I noticed that his brake was applied more fully. The moment that I heard the whistle I at once applied the hand brake fully. I noticed by the gauge that by that time the driver had applied the vacuum brake fully, and the train very soon came to a stand. At that time I did not know why the train had been brought to a stand. I got out of my van and walked up the train examining the carriages. When I got to the engine I walked round it and saw that the left hand coupling rod was broken. As soon as I found out what had happened I took steps to protect my train, and it was only subsequently I was told that the axle was broken. None of the vehicles of my train were derailed, and no damage was done to any of them except the engine. As far as I could see the permanent way was not damaged at all. No passengers complained to me of being injured in any way.

*Joseph Metcalfe*, district foreman, states: I am district locomotive foreman, and am stationed at Tenby. I have held this appointment of district foreman for about five years under the Great Western Railway Company, but previous to that I had been district foreman under the Pembroke and Tenby Company for about 15 years. I was at Tenby at the time of the accident, and I at once went down with the break-down gang to clear the line, arriving on the spot at midnight. I examined the engine and found that the leading axle had broken. It had broken on the left-hand side close to the boss of the wheel. The coupling rod of the left-hand side was also broken between the leading and driving wheels. The coupling rods on the right-hand side were also bent. I arranged to remove the leading axle and its wheels from the engine, and to substitute another axle and wheels for them, and then the engine was removed to Tenby. The brake hanger on the left-hand side was also broken. The engine

1858 is in my charge. I cannot say how old the engine is. It came into my charge in 1898, and everything was in good condition when it came into my charge. The first time that this engine underwent general repair, after coming into my charge, was in April 1901. At this time the tyres were turned up, and whenever tyres are turned up the axle is carefully examined, and nothing was found wrong with it on that occasion. On these occasions we clean the axle and examine it thoroughly, and then bump it up against another wheel, and if there is any flaw the oil makes its appearance on the surface, and the flaw is thereby detected. If there had been a flaw in this axle at the place where this break took place it would have been detected on this occasion, but the position of the break was such that it could only be detected when the engine was lifted. Since April, 1901, the engine has not been lifted, so subsequent to that date there would have been no opportunity to discover a flaw at the point where the axle broke. I do not look upon this engine as an old one, in fact I consider that it was practically a new engine when I took it over in 1898, and I consider that at the time of the accident it was in good order. I did not consider that this engine was at all one which as yet had by any means finished its life. It had a good many more years work in it. I had never received any complaints from any drivers about this engine. After we had removed the axle from under the engine I examined the break. The opinion I formed was that the axle had been fractured for some time previous to the final break, and that recently it was only a small portion of it which had been holding it together, but I could not form any opinion as to how long the original fracture had taken place before the final one.

*Mr. W. H. Waister* states: I am running superintendent of the Great Western Railway, and have held that appointment for five years. I am acquainted with the engine No. 1858, to which this accident occurred. This engine was originally built in 1890, and in 1898 she was brought into Swindon shops and was thoroughly repaired and fitted with a new boiler. She was again repaired at Tenby in 1901, when the tyres were turned up and the axles thoroughly examined, and the axles were found to be quite sound. The engine is a six-wheels-coupled tank-engine, total weight 43 tons 12 cwt. The weight on the leading wheels is 15 tons 4 cwt., on the driving wheels 15 tons 4 cwt., and on the trailing wheels 13 tons 4 cwt. The mileage run by this engine since she was first constructed is 234,265 miles, and the mileage since she was repaired in 1898, 66,683, and the mileage since the examination of the engine in 1901 is 26,491. Generally speaking, from the history of this engine, it should at the time of the accident have been in good working order. The axle which broke is of steel. It was manufactured by the Bolton Iron and Steel Company and delivered by them to the Great Western Company in 1889. It was put into the engine in 1890. The diameter of the body of the axle is  $7\frac{1}{8}$  inches; the diameter at the journal 7 inches, but worn at the time of the accident to  $6\frac{1}{8}$  inches, showing a wear of  $\frac{3}{8}$  of an inch all round; and the diameter at the wheel seat is 8 inches. These dimensions are those of a type of axle which we still employ. Our custom as regards the testing of axles which are in use is as follows:—Whenever the engine is lifted the axles are scraped and thoroughly examined by a man specially appointed for the purpose, and a careful record kept of it. We have no special



rule as to how often an engine is lifted, but as a matter of fact an engine of this type would never run 40,000 miles without being lifted. Before it had run that distance the tyres would require turning up, and this would entail lifting. As a general rule we find that they do lift engines before they run the 40,000 miles. Every driver is allowed an hour a day for examining and preparing his engine, and he is supposed to examine the visible parts of the axle, but of course would not be able to detect a flaw at the point at which this break occurred. A flaw occurring at the place where this break took place could only have been detected when the engine was lifted. I have seen the broken axle. I am of opinion that there was a flaw existing in the axle previous to the accident, but I can give no opinion as to how long it had been in existence previous to the final break. The final break consisted of a portion nearly circular in shape and about 3 inches by  $3\frac{1}{2}$  in diameter. I am of opinion that the break of this latter portion went off at once at the time of the accident. I know of no method of testing by which a flaw in an axle similar to what occurred in this case can be detected without lifting the engine. A good many flaws are detected in axles by our men in examining engines, and however small the flaw is the engine is not allowed to run again until fitted with a new axle. I do not think there is anybody on my staff under me whom I could hold responsible for not having detected this flaw.

*Mr. Henry Charles King* states: I am the locomotive works manager at Swindon. As regards the testing of locomotive axles, the Company's inspector has free access to the manufacturing works. The blooms from which these axles are forged are examined and the final forging very carefully examined at the manufacturing works. This is all that at the time at which this axle was supplied was done with reference to the axles supplied by the Bolton Iron and Steel Company. Now, however, it is our custom to test to destruction 2 per cent. of all axles ordered. At the time these axles were supplied it was not considered necessary to test any axles to destruction because at that time orders were only placed with well known firms, but now that the supply of these axles is open to the whole market it is considered desirable to carry out further tests.

The axles would, however, have been further carefully inspected at Swindon works when they went through the process of machinery. It is not unusual for us, after inspecting new axles, to return some which are found to be faulty. I cannot produce any actual records of tests made of this axle. From my knowledge of the routine of the shops at Swindon I feel confident that there is no doubt that when the engine was overhauled in 1898 the engine was thoroughly examined, and I produce a record showing that this actual axle was inspected and certified as sound on the 2nd November, 1898. I produce a table giving a history of this axle and showing the inspections which have been made of it from 1890 up to the present date. I examined this axle as soon as it arrived at Swindon. I formed the opinion that the failure had been a gradual one, but there is nothing to show how long this failure had started previous to the final rupture. Our practice is to remove an axle as soon as any flaw of any sort is detected in it. I hand in our modern specification for axles, and I submit that the tests therein enumerated include every possible precaution that can be taken.

*Daniel Evans*, ganger, states: I have been employed by the Company for the past 28 years. I have been ganger for seven years, and am in charge of the section of the line where the accident occurred. I walked over the line on the morning of the accident at about seven o'clock and found it to be in good condition. I was on the spot about 15 minutes after the accident occurred—it was then too dark to make a thorough examination of the line, but I did so at 5.30 a.m. on the next day. I then found there was nothing wrong with the permanent way, but there were some marks on some of the sleepers on the left side of the line. I examined the points outside Templeton Station and found all in good order. No alteration whatever has been made in the permanent way since the accident. I tried the gauge of the line and found all correct. I could find nothing connected with the permanent way which could in any way have been the cause of the accident. No complaint has ever been made to me of any defects in the permanent way at the point the accident occurred. I consider the line generally at the point to be in good condition.

### Conclusion.

The only direct evidence which can be obtained with regard to this breakage is that of the driver and fireman. They both concur in stating that just about the time that their engine was passing the trailing connection on the south side of Templeton Station, at a speed which appears to have been between 20 and 30 miles an hour with steam turned off, they heard some noises which appeared to be the result of knocks. Fearing that something was wrong they at once applied the brakes; the train at this time was travelling on a descending gradient of 1 in 52, and it appears to have been brought to a stand in about 300 yards.

On examining his engine the driver at once found that the coupling rod on the right hand side of the engine was bent, and on going round to the left hand side he found that the coupling rod on that side was broken off close to the crank of the leading axle. At that time he was not aware that any further damage had occurred, and it was only subsequently, when endeavouring to remove the broken portions of this coupling rod, that he discovered that the axle of the leading wheel was broken.

The break occurred on the left hand side of the axle, between the boss and the journal, *i.e.*, just inside the left wheel. The broken end of the axle was resting on the axle-box, so the axle remained in a horizontal position. The left wheel still kept to the rail, being kept in position by the frame of the engine on its inside, and by the splasher and the brake-block rod on its outside.

The only marks on the permanent way connected with this accident were marks of blows on the sleepers and ballast outside the left hand rail. These marks commenced at a point 25 yards beyond the siding connection, and they continued close up to the point where the engine came to rest. The marks are not continuous but appear at intervals, about 50 sleepers in the 300 yards length being so marked. The marks are precisely such as might be caused by blows from the end of the broken connecting rod on the left hand side of the engine, one end of which was found to be still connected to the crank of the driving wheel.

When the engine was brought to rest this coupling rod was found to be very much bent, and there can be no doubt that the marks on the sleepers and the bending of this connecting rod were caused by the latter striking the sleepers as it was driven forwards by the driving wheel. The portion of the connecting rod which caused these marks was not at that time connected with the leading wheel, so these blows could not have caused the breakage of that axle; the latter must have broken first, and then it was probably the uneven movements of the left leading wheel which caused the coupling rod to break off close to the crank of that wheel.

No other marks of any sort appear on this line either at the point at which the breakage is supposed to have occurred or previous to the train reaching that point. The road was in excellent condition, the rail a comparatively new one, and the line well ballasted. The points at the siding connection were in good order and right to gauge; they were securely locked at the time the train ran through them, and they were not damaged by it in any way.

Whilst therefore it may be possible that a slight jolt when passing through this siding connection may have been the last straw which finally caused the break of the axle, I certainly do not consider that the breakage could have been actually caused by any defect in the permanent way.

The ends of the broken axle showed clearly that there had been a large flaw in existence for some time previous to the accident, and that latterly there had only been a small nearly circular portion, three inches by three and a half inches in diameter, which was holding, and it was this portion which finally separated when the accident occurred. It is impossible to say how long the flaw had been in existence, but it had probably been so for some time previous to the final break.

This axle was of steel; it had been made by the Bolton Iron and Steel Company, and had been supplied by them to the Great Western Railway Company in 1889. Wheels were fixed on to it in January, 1890, and it was then put under the leading end of engine No. 1,858, where it was at the time of its fracture.

The diameter of the body of the axle was  $7\frac{1}{8}$  inches, and that of the wheel seat was 8 inches; the diameter of the journal was originally 7 inches, but at the time of the accident it was worn to  $6\frac{1}{8}$  inches, showing a wear of  $\frac{3}{8}$  of an inch all round.

At the time that this axle was supplied the Company's customary examination of new axles was as follows:--The Company's Inspector had access to the manufacturer's works, and he carefully examined both the blooms from which the axles were forged and the final forging; on receipt of the axles at the Company's works at Swindon they were again carefully examined when they went through the process of machining. It was not at that time customary, as it is now, to test to destruction a certain percentage of new axles (*vide* Specification given in the Appendix); and the Company explain that that course was not considered necessary at that time as orders were then only placed with well known firms, and the supply was not open to the whole market as is now the case.

The Company's custom as regards the periodical testing of axles is as follows:--Every driver is allowed an hour a day for the preparation and examination of his engine, and during this time he should examine by inspection the visible parts of the axle; further, whenever an engine is lifted, which usually takes place before it has run 40,000 miles, the axle is scraped and thoroughly examined by a man specially appointed for the purpose, and should any flaw of any sort be detected in it the axle is at once removed; the Company state that a good many defects in axles are detected by this examination. The position at which the breakage in this instance occurred was such that the flaw could not possibly have been detected except when the engine was lifted.

A history of this axle, extracted from the Company's books, is given in the Appendix; from this it will be seen that the total mileage run by this axle since it was put under the engine in 1890 is 234,265 miles, and that during that period the engine has been lifted and the axle thoroughly examined eight times, that is to say, once for every 30,000 miles run; the last examination previous to the breakage had taken place in April, 1901, since which date the axle had run 26,491 miles.

The engine No. 1,858, to which this accident occurred, was originally built in 1890; in 1898 it was brought into the Swindon shops and thoroughly repaired, being then fitted with a new boiler. It was then sent to the South Wales District, and Mr. Metcalfe, into whose charge it then came, states that he considered that it was at that time a practically new engine. Since that date it underwent general repairs in 1901, and at the time of the accident he considered that it had still many more years life in it.

Judging from the evidence and from an inspection of the engine, I am of opinion that, with the exception of the flaw in the axle, the engine was in thoroughly good working order at the time of the accident, and that the fact of the flaw in the axle not having been detected previous to the final break was not due to any want of care on the part of the Company's servants.

It is, as has been previously pointed out in Board of Trade reports, a matter of regret that no method of testing has yet been devised by which the presence of an internal flaw in an axle can be detected.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. von DOKOP,  
Lt.-Col., R.E.

#### APPENDIX.

History of axle No. 8,634.—Date put in wheels, January 30th, 1890; maker, Bolton Iron and Steel Company; material, steel; mileage, 234,265.

January 30, 1890. New wheels, axle, and tyres put under leading end of 1,858, (fifth engine of 79th lot).

January 31, 1891. Axle examined at Gloucester—axle sound, tyres good.

Mileage 26,426.

February 22, 1892. Axle examined at Swindon Works—axle sound, tyres returned.

Mileage 28,904 = 55,330.

June 24, 1893. Axle examined at Swindon Works—axle sound, new set of tyres.

Mileage 21,982.

November 3, 1894. Axle examined at New Milford—axle sound.

Mileage 23,897 = 101,209.

November 10, 1894. Axle examined at Newport—axle sound, tyres good.

Mileage ———.

November 14, 1896. Axle examined at Swindon Works—axle sound, tyres turned up.

Mileage 33,700 = 134,909.

November 5, 1898. Axle examined at Swindon Works—axle sound, new tyres.

Mileage 32,673.

April 27, 1901. Axle examined at New Milford—axle sound, tyres re-turned.

Mileage 40,192 = 207,774.

April 27, 1901, to September 25th, 1902.

Mileage 26,491.

234,265

(NOTE.—This axle has always been under the leading end of engine 1,858.)

#### SPECIFICATION FOR STEEL STRAIGHT AXLES (LOCOMOTIVE, CARRIAGE, AND WAGGON), TO BE SUPPLIED TO THE GREAT WESTERN RAILWAY COMPANY.

1. The axles to be of British manufacture, made from mild steel (acid) ingots rolled into bars and hammered to the form and dimensions shown on the drawing to be supplied. The finished dimensions will be given on the drawings, also the maximum weight. No invoice will be accepted for axles charged in excess of the maximum weight specified.

2. The Great Western Railway Company's Inspector to have free access to the manufacturer's works at all reasonable times during the course of manufacture, and to be at liberty to inspect any axles, blooms, or ingots, whether finished or in course of manufacture.

3. Each axle to be guaranteed to stand the following tests:—

(a) DROP TEST.—Five blows without fracture from a weight of 2,000 lbs. falling from a height (as specified below) upon the axle placed upon bearings 3 ft. 6 in. apart. The axle to be turned after the first and third blows. After being tested the axle to be broken.

For axles 6 inches diameter at middle or more ... 30 ft. fall.

For axles less than 6 inches diameter at middle ... 20 ft. fall.

(b) TENSILE TEST.—A test piece cut from any part of the axles tested, or from the ends left on the forgings, to give an ultimate strength of not less than 30 tons nor more than 35 tons per square inch, with 25 per cent. elongation measured over a parallel length of 3 inches having an area of half a square inch.

(c) COLD BEND TEST.—A bar 9 inches long and  $1\frac{1}{4}$  inches square,  $\frac{1}{8}$  inch radius at the corners, to be bent through 90° round a bar  $2\frac{1}{2}$  inches diameter and the ends brought together without fracture.

4. The contractor to furnish at his own expense extra axles for drop testing in the manner described in Clause 3, at the rate of 2 per cent. of the axles ordered under the contract, and the Great Western Railway Company's Inspector shall select and test such of the axles as he may think proper. The axles tested to be held to represent correctly the quality of the casts from which they are made. Where practicable, the axles represented by each axle tested to be made from the same cast of metal.

In the case of a less number than 50 being ordered or made from one cast, an end to be left on one axle from each ingot of the same diameter

as the forged end of axle, to enable the Inspector to stamp one from which test pieces may be cut for the tensile test and cold bend test as specified in Clause 3.

If the Great Western Railway Company desire to make tensile or other tests of the material, the broken pieces of any of the axles tested shall be placed at their disposal, free of charge, for the purpose.

5. In the event of the representative axle (see Clause 4) not satisfying the requirements of Clause 3, the Great Western Railway Company's Inspector to be permitted to make further tests of axles, provided by the contractor at his own expense, before finally accepting or refusing the axles represented :—

- (a) Should the axle fail in the drop test, two more axles will be taken from the same cast for testing.
- (b) Should the axle fail in the tensile or bend test, and the fractured test piece indicate that the result does not fairly represent the bulk of the axles, then a second test piece will be taken from the same axle together with a test piece to be prepared from another axle selected by the Inspector.
- (c) The axles represented will be accepted if two of the three test results are satisfactory.

6. All axles rejected for failure in test to be destroyed in the presence of the Great Western Railway Company's Inspector; any rejected for surface or other defects shall have the letters G.W.R. obliterated in the presence of the Inspector.

7. All axles to be annealed by being slowly re-heated and left in the furnace to cool; or, if removed while hot, to be stacked in ashes to cool.

8. The manufacturer to prepare samples and supply labour and appliances for testing at his own cost, and to supply full analysis of each cast.

9. Each axle to be well stamped while hot on the body near to the wheel-seat with the maker's name and brand, the month and year of manufacture, number of cast, and the letters G.W.R. Any axle failing before it has run 12 months to be returned to the contractor.

10. The Great Western Railway Company's Inspector will give certificates for all axles which he has passed as complying with the terms of this Specification, and no axles must be forwarded until this certificate has been obtained. The certificates given by the Inspector to be forwarded to Swindon, attached to the invoices.

W. DEAN.

G.W.R. Loco. & Carr. Dept.,  
Engineer's Office,  
Swindon, May, 1899.

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Printed copies of the above Report were sent to the Company on the 10th November.

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## GREAT WESTERN AND MIDLAND RAILWAY COMPANIES.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
4th November, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 16th September, the result of my inquiry into the circumstances under which two collisions between trains took place at about 8.50 p.m. on the 12th of September at the Bristol Joint Station of the Great Western and Midland Railway Companies.

In this case as the 8.40 p.m. up passenger train from Bristol to Salisbury, consisting of an engine, tender, and seven vehicles, was starting from Bristol Station and was running from one of the platform lines on to the up main line it was brought to a stand just outside the station, and whilst standing in that position it was run into by an empty passenger train which was being backed out of another platform line on to the up main line. The rear vehicle of the empty passenger train struck the engine of the Salisbury train just opposite its trailing wheels and derailed it on the up side of the line, whilst three of the coaches of the empty train were derailed on the down side of the line foul of the down main line.

Almost immediately after the first collision had taken place the 6.25 p.m. down train from London, consisting of an engine, tender, and nine vehicles, arrived at the spot, and came into collision with the coaches of the empty train which were derailed on the down main line. Fortunately, owing to the fact that the down train was about to stop at Bristol Station, its speed at the time was not very great. Its engine was, however, derailed, though none of its other vehicles left the line.

The fireman of the down train and a shunter, who was superintending the backing of the empty train out of the station, were both seriously injured, and the submission of this report has been delayed until the latter had sufficiently recovered to be able to give evidence.

Six complaints have also been received from passengers in the down train of personal injuries received. None of the passengers in the Salisbury train were injured.

The engine of the Salisbury train was a four-wheels-coupled tender engine, and its train consisted of the following vehicles :—

	Wheels.				
1 brake van ... ..	...	...	...	...	8
2 third-class carriages ... ..	...	...	...	...	8
1 composite ... ..	...	...	...	...	8
1 composite ... ..	...	...	...	...	6
1 brake van ... ..	...	...	...	...	8
1 horse-box ... ..	...	...	...	...	6

The engine of the empty passenger train was similar to the above, and the train consisted of the following vehicles :—

	Wheels.				
1 brake van ... ..	...	...	...	...	8
1 third-class carriage... ..	...	...	...	...	8
1 composite ... ..	...	...	...	...	8
1 van ... ..	...	...	...	...	6
1 third-class saloon ... ..	...	...	...	...	6
1 brake composite ... ..	...	...	...	...	6
1 brake composite ... ..	...	...	...	...	8
1 brake, 2nd and 3rd ... ..	...	...	...	...	8
1 composite ... ..	...	...	...	...	8

The engine of the 6.25 down train was a single driving-wheel tender engine, and the train was composed as follows :—

	Wheels.				
1 brake third ... ..	...	...	...	...	8
1 composite ... ..	...	...	...	...	8
1 brake third ... ..	...	...	...	...	8
1 composite ... ..	...	...	...	...	8
1 dining saloon ... ..	...	...	...	...	8
1 brake third ... ..	...	...	...	...	8
1 composite ... ..	...	...	...	...	8
1 brake third... ..	...	...	...	...	8
1 dining saloon ... ..	...	...	...	...	8

All the above engines were fitted with steam brakes working blocks on four wheels of the engines and on the six tender wheels, and with hand brakes working the blocks on the tender wheels. The trains were all fitted with the automatic vacuum brake working blocks on all the wheels of the eight-wheeled vehicles and on four of the wheels of the six-wheeled ones.

The details of the damage done to the rolling stock and to the permanent way are given in the Appendix.

### *Description.*

There are four platforms in Bristol Station, which are known as Nos. 1, 2, 3, and 4 respectively, and each of these has a platform line running alongside of it. No. 1, which is the down main line platform, is on the south side of the station, and No. 4, which is the up main line platform, is on the north side of the station. Nos. 2 and 3 are island platforms situated between Nos. 1 and 4.

There is a signal-box at the east end of the station, which is known as the East signal-box ; it is situated on No. 4 platform close to the north end of it, and all the points and signals at the east end of the station are worked from this box.

The up and down main lines run into the station from the eastward in a direction which is approximately east and west, the down main line being on the south side of the up main line.

The down main line has connections leading to platform lines Nos. 1 and 2, while the up main line has connections leading from platforms Nos. 2, 3, and 4.

The first collision which occurred on this occasion is concerned with the connections leading from platform lines Nos. 2 and 4 respectively on to the up main line. The Salisbury train was leaving No. 4 platform line to run on to the up main line, while the

empty carriages were backed from No. 2 platform line on to the same line ; the collision occurred at the fouling point between these two connections, which was at a point 120 yards to the eastward of the signal-box.

The second collision occurred on the down main line just opposite this point.

No. 4 platform line is provided with an up starting signal, situated 25 yards to the east of the signal-box, and 265 yards eastward again is the up main line advanced starting signal.

No. 2 platform line is provided with a backing signal for backing trains from that line on the up main line.

The down main line is provided with a distant and home signal, the latter being 120 yards to the east of the signal-box and almost opposite the point at which these collisions occurred.

The night on which these collisions occurred is reported as having been dark but clear.

### *Evidence.*

*William John Willis*, driver, states : I have been in the service of the Company 34 years, during 26 of which I have been a driver. I came on duty on the 12th September at 1.40 p.m. to work till 11 p.m. I had previously come off duty at 1 p.m. on the 11th. I was in charge of the engine of the 8.40 p.m. up passenger train from Bristol to Salisbury. My engine was a four-wheels-coupled tender engine running chimney first. It was fitted with a steam brake working blocks on the four coupled wheels and on the six tender wheels, and with a hand brake working blocks on the tender wheels. The handle which applies the steam brake to the engine and tender also applies the automatic brake to the train, and the application of the automatic brake to the train applies the steam brake on the engine and tender. My brake was in good order. About 8.35 p.m. I attached my engine to the Salisbury train in the West sidings, and I brought that train up to No. 4 platform. Before leaving the siding I tested the vacuum brake and found it satisfactory. It was about 8.37 p.m. when we drew up to No. 4 platform line. I first used the ejector to create a vacuum when we were at the West sidings, the gauge showing 25 inches. When I reached No. 4 platform line I stopped the train by means of the automatic brake, and my gauge accordingly went down to about 10 or 12 inches. I did not use the ejector again until after I had received the signal from the guard to start. Before I worked the ejector, just before starting from the station, I saw that my vacuum gauge was at zero. I know that my fireman had worked the ejector a few minutes previously. I thought that the fact of the gauge having gone down to zero must have been due to some vehicle having been attached or detached, but I took no steps to again test it because I had not time. After the train left the sidings there were to my knowledge no additional carriages attached to the train. At 8.46 p.m. the platform starting signal was lowered for me, and immediately after that I received an order from the guard to start. At the time that I started, the advanced starting signal also was off for me, and also the distant signal for South Wales Junction, which is under the platform starting signal. As soon as I had got about two coaches, length from the platform I noticed that my steam brake was applied on both the engine and tender, and the train came to a stand of its own accord. At that time my engine was standing foul of the connection leading from No. 2 platform line. The guard of the train came up and I asked him why he had stopped the train, and he said he had done nothing of the

sort. I then asked him if we were right away, and he said "Yes, when I get back to my van." I was just going again to create a vacuum in the tube when my engine was run into by some empty coaches which were propelled along the connection leading from No. 2 platform line. The coaches struck my engine just opposite its trailing wheels, and my engine was partially derailed. My tender was not derailed, nor was any other vehicle of my train. The coupling between the tender and the train was broken. I was not at all hurt myself, nor was my fireman. As soon as I saw that the brakes were applied to the train I had turned off steam.

*John Heenan*, head guard, states : I have been twelve years in the service of the Company, during four of which I have been a guard. I came on duty on September 12th at 12.40 p.m. to work till 11 p.m. I had come off duty on 11th September at 11 p.m. I was head guard of the 8.40 p.m. passenger train from Bristol to Salisbury. I joined the train about 8.37 p.m., it was then standing on No. 4 platform line. The train when I joined it consisted of the following vehicles attached to the engine in the order given :—

- One 8-wheeled brake van.
- One 8-wheeled third.
- One 8-wheeled third.
- One 8-wheeled composite.
- One 6-wheeled composite.
- One 8-wheeled brake van.

The carriages were fitted with the automatic vacuum brake working blocks on all the wheels of the eight-wheeled vehicles, and on four wheels of the six-wheeled vehicle. After joining the train I did not test the automatic brake in any way. I am aware that there is a rule that I should test the automatic brake before the train starts. I made no special trial of the brake, because I saw from the gauge in my van that there was 25 inches of vacuum. I had seen this before I gave the signal to start. Just before the train started, before I gave the signal to start, I saw that an additional horse-box had been attached to the rear of my train. It was subsequent to the horse-box being attached that I saw that there was a pressure of 25 inches in the vacuum brake tube. I am aware of the rule which states that when any vehicle is attached to a train the brake valve in the rear van should be momentarily opened with a view of testing the brake. This was not done on this occasion after the horse-box was added to the train. I did not do so, because seeing that there was 25 inches of

pressure shown in my gauge, I did not think that it was necessary to do so. The train started at 8.26 p.m., and it came to a standstill with the trailing end of my van just over the level crossing. I looked at once at my gauge and saw that there was 20 inches of vacuum, which was gradually decreasing. I got out of my van and examined the pipe behind my van, which appeared to me to be all right. I then walked up to the driver and asked him why he was stopped, and he said that he was pulled up. I said "I have not pulled you up," and his mate then looked out and said that he had not pulled him up. I said to the driver "It is all right, when I get back to my van." When I got to the leading coach of the train the collision occurred. Some of the coaches which had run into my train were derailed, but I cannot say whether they were fouling the down main line as I was on the other side of my train. I first looked after the passengers, and I then communicated with the signalman in the signal-box, but before I had time to warn the signalman the second collision on the down line had occurred. After the accident the train went as far as Bath. I experienced no trouble with it. At Bath the horse-box was taken off as it was only intended to go to that station. I remember telling the driver at Bath that he had not got to stop at Freshford or Wishford, but I am quite sure that he said nothing to me about having had trouble with the vacuum brake.

*Henry Lock*, fireman, states: I have been in the service of the Company nearly six-and-a-half years, during nearly five of which I have been fireman. On the 12th September I was doing duty with driver Willis, and on both the 11th and 12th worked the same hours that he did. I was with him on the 8.40 p.m. train from Bristol to Salisbury, and I was with him when the engine was coupled up to the train in the West sidings. Before we left the sidings I remember seeing driver Willis test the automatic brake of the train, and I saw that the test was satisfactory. We then took the train up to No. 4 platform line. I did not know when in the station that any additional vehicle was added to the train, but as the train was starting I looked back and saw that a horse-box had been added. About four or five minutes before the train started I had myself blown up the vacuum brake, the pressure was still 25 inches, and the pressure seemed to remain constant. Soon after we started the engine was working heavily, and we were brought to a stop. I then looked up to the vacuum brake gauge and saw that there was only 10 inches. The guard came up and the driver had some conversation with him. We were then waiting to get the "Right away" signal from the guard, when my engine was run into by some empty coaches. I was not injured myself. I did not see the coaches coming towards us until the collision actually occurred. The coaches were derailed and were lying over towards the down main line.

*William Walter Woodward*, shunter, states: I am a shunter employed at Bristol Joint Station. I have been about 18 years in the service of the Company, during about 12 of which I have been employed as a shunter at Bristol. I myself on the 12th September connected the horse box on to the rear of the 8.40 train to Salisbury. I think that this box was connected on between 8.35 and 8.40 p.m. Immediately after coupling on the horse-box I went off duty, and I did not see the train start. I think it was about 8.40 when I completed the connection. I connected the auto-

matic brake pipe between the horse-box and the rear vehicle, and the connection appeared to be in good order. I went round to the back of the horse-box and saw that the pipe was plugged all right. The plug appeared to me to be fitting quite properly. I do not think that I really touched the plug at the rear of the horse-box, I simply looked to see that it was all right. I am in the habit of examining brake pipes. After connecting the horse-box, and before I went away, I looked into the guard's van to see what the vacuum gauge was registering and saw that it was registering 25 inches.

*George Pope*, inspector, states: I have been employed about three-and-a-half years as inspector at Bristol Station. I remember on the 12th September attaching a horse-box to the rear of the 8.40 p.m. train to Salisbury. The box was attached under my superintendence, and I should say it was attached at as near as possible 8.40 p.m. I do not think that the guard of the train was warned that this box had been attached to his train. I myself should have told him of it, but I do not remember seeing him, and I did not make any special effort to see him.

*James Conybeare*, driver, states: I have been in the service of the Company about 36 years, and have been a driver for about 26 years. I came on duty on the 12th September at 11.50 a.m. to work till 9 p.m. I came off duty the previous day at 8.35 p.m. I was in charge of the engine of the 4.30 p.m. train from Crewe, and I took charge of that train from Shrewsbury. We arrived at Bristol at 8.40 p.m. and ran into No. 2 platform line. After we had completed the work at the platform I received a hand signal from a shunter to back my train; I did so. There was a backing signal for this operation, but I could not see it from where I was standing, but when I came in sight of it I saw that it was lowered for me. My train was brought to a sudden stop, but I did not know at the time what had happened. I subsequently learned that the rear end of my train had been in collision. I think we were moving at about four miles an hour at the time of the collision. Immediately after the collision I saw that the backing signal was restored to danger. From where I was I could not see that anything was foul of my line. My engine was a four-wheels-coupled tender engine fitted with the automatic steam brake, which was in good order. The time of the collision was 8.52 p.m.

*Edward Wilkins*, driver, states: I have been 32 years in the service of the Company, during 14 or 15 of which I have been a driver. I was in charge of the 6.25 p.m. train from Paddington on 12th September. I came on duty on that day at 8.17 a.m. to work till 8.52 p.m. I have an interval of rest from 2.20 p.m. to 6.25 p.m. at Paddington, and during that time I can leave my work. I came off duty the previous day at about 8.52 p.m. My engine was a single driving-wheel tender engine, fitted with steam brake working blocks on the four wheels of the engine and on the six tender wheels. The train was fitted with the automatic vacuum brake, applied by the same handle as the steam brake. I remember approaching Bristol Station—the signals were all off for me. The first I knew of the collision was feeling my engine strike something. I had not seen anything on the line in front of me. I was watching the signals carefully at the time. The collision occurred when we were very nearly under the Bristol home signal, and that signal was off for me. I account for my not having seen



anything on the line in front of me to the fact that I was looking at the signals, and that it was dark at the time. I cannot say whether there were any lights on the vehicle which we ran into. I do not think there were. I think the time of the collision was 8.51 p.m. After the collision I saw what had happened, and found that we had run into some carriages which were fouling my line. I think that my speed at the time of the collision was about eight miles an hour. My engine and tender were both derailed, and I think that the coach next the engine was derailed. I was myself slightly injured, but I had not to leave work. My fireman was badly injured, his leg being broken.

*William Moles*, guard, states: I have been in the service of the Company 38 years, during 32 of which I have been guard. I was in charge on the 12th September of the 6.25 p.m. express from Paddington. I came on duty at 6 p.m. to work till midnight. I came off duty on the 11th September at 10.10 p.m. My train consisted of the following vehicles, attached to the engine in the order named:—

	Wheels.
One brake third ... ..	8
One composite ... ..	8
One brake third ... ..	8
One tri-composite ... ..	8
Empty dining saloon	8
One brake third ... ..	8
One composite ... ..	8
One brake third ... ..	8
One dining saloon ... ..	8

I was riding in the third vehicle from the engine. My train was fitted with the automatic vacuum brake working blocks on all the wheels of the train. My brakes were in good order. The first I knew of the collision was feeling the shock of it. I estimate our speed at that time at from 8 to 10 miles an hour. The shock of the collision was very severe. I was not hurt, though I was slightly dazed for a time. After the accident I got out to see what was the cause of it, and I found that my train had come in collision with some carriages which were fouling the line on the off side, and the engine of my train was off the road. None of the vehicles of my train were derailed. No passengers complained to me of having been injured, but one lady appeared to be affected. The signals were all off for my train. The collision occurred at 8.51 p.m. We were due at Bristol at 8.52 p.m., so that we were running punctual.

*John Lloyd*, signalman, states: I have been 21 years in the service of the Company, and 14 of which I have been a signalman. I have been employed about one-and-a-half years in the Bristol East signal-box, and was on duty there on the 12th September. I came on duty at 2 p.m. to work till 10 p.m. I came off duty at 10 p.m. the previous day. I remember lowering the signals for the 8.40 p.m. Salisbury train to leave platform No. 4. I lowered these signals at 8.46 p.m., and about one minute after that the train started. I had to lower both the platform starting and advanced starting signals for this train. When the train started from the platform I was at the west end of the cabin, and I saw the train start and leave the platform. I went back into the cabin to put the platform starting signal to "danger," and give the "Out of section" signal to the West box. I then returned to the lever working the advanced starting signal. I waited there for a minute, and I then called out to my assistant

who was at the east end of the cabin, to know whether the Salisbury train had gone. He looked up the line and answered me "Yes, all right." I then said "We will now let the empty coaches go." I then put back the advanced starting signal lever, and Wilkey, the assistant signalman, pulled over No. 48 points, and I pulled No. 94 signal, which is the backing signal from No. 2 platform line to the up main line. I then walked up to the east end of the cabin, accepting the 6.25 p.m. express from South Wales Junction box, and walked to the window at the east end, and found that the Salisbury train was standing just beneath me. I shouted out to Wilkey to put 94 signal to danger at once, whilst I threw up the signal against the down express. Immediately after I had told my assistant to put 94 to danger the first collision occurred. The second collision occurred immediately after I had put the main line signals to danger. The two collisions occurred almost immediately one after the other. When I asked my assistant about the Salisbury train he was standing about half way between the centre of the cabin and the east end of it. He just moved a step backwards so as to get a good view out of the window before answering me, but he did not move at all towards the east end of the cabin. From the position in which he stood I thought that he had been able to see the tail and side lamps of the train passing the advanced starting signal, and from the way he spoke to me I was convinced he could see the train pass that signal. I had no difficulty when I got to the window in seeing the Salisbury train standing beneath me. The tail of the train was very close to me, and I could see the tail lamp and the two side lamps. The only explanation my assistant gave me of his mistake was that he thought that the Salisbury train had gone. The night was dark, but clear, and there was no fog. I am not quite sure whether I saw both side lights on the Salisbury train, but I certainly saw one.

*George Olding Wilkey* states: I have been in the service of the Company seven-and-a-half years, one-and-a-half of which I have been a signalman. I have been employed about four months in the Bristol East signal-box as assistant signalman. I came on duty on the 12th September at 3 p.m. to work till 1 a.m. on the 13th. I had previously come off duty at 1 a.m. on the 12th. I remember the 8.40 p.m. Salisbury train starting from No. 4 platform. Lloyd had lowered the signals for this train to start. He had lowered both the platform starting and advanced starting signals for it. I saw the train start from the platform, and I sent the "Train entering section" signal for it to the South Wales Junction box. This was at 8.48 p.m. At 8.50 the South Wales Junction box offered me the 6.25 express, and I accepted it at once. Signalman Lloyd offered the express train to the West box, and I pulled off the down main line signals. I then came back to the middle of the box, and my mate, who was standing at the farther end of the cabin, called out to me, "Is that train gone?" meaning the Salisbury train. I did not go to the window, but looked up along the line from where I was standing, which was at the centre of the box, and, seeing no tail or side lights, I said "Yes, it is gone." Lloyd, my mate, then said "We will let the coaches go from No. 2 next," and I set the road for them, pulling over No. 48 lever, and my mate then pulled off No. 94, which is the backing signal for it. I then stood opposite the block instrument waiting for South Wales Junction to clear the Salisbury train, and thinking he was



rather a long time about it, I rang him up on the bell. My mate then walked to the top end of the cabin and looked out of the window, and saw that the Salisbury train had not gone, and he called out to me to put back No. 94 lever. I at once put back No. 94 lever, but immediately after doing so the first collision occurred. About the same time my mate put the down main line signals to danger, and the second collision occurred about fifteen seconds after the first one. I admit that it was my mistake in thinking that the Salisbury train had gone, but I felt perfectly convinced that it had done so, and it was on that account that I rang up South Wales Junction box. I was standing close to the centre of the box when my mate asked me whether the Salisbury train had gone. I may have moved a step or two forward towards the front of the box before I answered him, but I did not move up towards the east end of the box at all.

*Frederick John Burridge*, driver, states: I have been about 16 years in the service of the Company, during five of which I have been a driver. On the evening of the 12th September I was relief man in the sheds, and I was ordered to take my engine and take the Salisbury train to Salisbury from Pyle Hill Junction. This was after the accident occurred. The train consisted of the same vehicles as had previously started from Bristol. I had no difficulty in creating a vacuum with the ejector, but the pump would not maintain the vacuum. I noticed before I started that there was a slight leak somewhere in the brake. I stopped at every station before reaching Bath, but I had to keep the ejector going to get the brake off. At Bath a horse-box was taken off my train, and as soon as that was done the brake became all right. I had no further trouble between Bath and Trowbridge, which is where I left the train. I did not myself examine the horse-box, as I had not time to do so. At Bath I reported to the head guard that I had had much trouble with the brake all the way from Pyle Hill Junction, but I told him that it was now all right. The guard appeared to understand what I said to him.

*George Griffin*, carriage examiner, states: I have been 42 years in the service of the Company, during 37 of which I have been a carriage examiner, and am stationed at Chippenham. About 11 a.m. on the 13th September my attention was drawn by driver Harper to the condition of horse-box No. 121. He told me that the brake would not exactly act. I examined the horse-box, and found that at the rear end of it the coupling was not down flush on to the plug. This caused a leak in the vacuum pipe, which would account

for the bad working. I rearranged it so that it was flush with the plug. I did not hear whether the brake acted well after this as the train left almost immediately.

*Frank Bundy*, shunter, states: I have been five years at the Bristol Joint Station, and am employed there as a shunter. I came on duty at 7 p.m. on the 12th September. It is my regular duty of an evening to superintend the backing of the Crewe train out of No. 2 platform line. It is sometimes backed on to the up Great Western main line, and sometimes on to the up Midland line, and I know from the signals which line it is going to. On this occasion I waited until the platform work of the train was completed, and then I went and informed the signalman in the East box that the train was ready to be backed out. He acknowledged my communication, and about a minute afterwards the signal was lowered for the train to be backed on to the up Great Western line. I then altered the back light of the train so as to show a white light; this light was in good order and was burning well. I then gave the driver a hand-lamp signal to back his train. I then got into the rear brake composite and the train started to back. I was standing on the right-hand side of the brake, and was looking out of the window to see the main line signals. When we had moved back about 20 or 30 yards I heard what I thought was a danger whistle, so I moved back to the brake to apply it, but before I could do so my van came into collision with something and I was thrown back. I was only slightly injured, so I at once looked out and found that we had come into collision with the engine of a train. I had previously seen this train, but I thought that it was standing on the up Midland line. I found that my brake composite was derailed and was standing foul of the down main line, so I intended to at once go up the line to try and stop the down express train which I knew was signalled. I had got one foot on the line and one foot on the carriage step when I saw the engine of the down train close to me. I do not quite know what happened to me, but after the collision I found myself standing up with my hip bruised. I could not do anything more, so I went and lay down. I was not able to resume duty for five weeks. I think that at the time of the first collision the speed of my train was about six or seven miles an hour. I think that the second collision occurred about a minute and a half after the first one. I did not notice whether the down main line signal was put to danger before the second collision occurred. The express did not appear to me to be running very fast, and it was checking speed.

### *Conclusion.*

The first occurrence which contributed to cause these collisions was the fact of the Salisbury train coming unexpectedly to a stand just after it had started from Bristol Station. Almost immediately that this train had left the station the vacuum brake was automatically applied, and the train consequently came to rest with its engine standing at a point about 130 yards ahead of the signal-box and with its rear end just clear of that box. In this position the engine was standing foul of the connection leading from No. 2 platform line to the up main line.

The cause of this automatic application of the vacuum brake was not ascertained at the time, but from the above evidence there can, I consider, be no doubt that it was due to a leak, which was subsequently found in the pipe connection at the rear end of a

horse-box, which vehicle had been attached to the rear of the train just before it left Bristol.

This leak should undoubtedly have been discovered before the train started had the vacuum brake been tested after the horse-box had been attached to the train. The driver states that he had tested the vacuum brake when he first brought the train to the platform and that he found it to be in good order, so, not knowing that any other vehicle had been attached to the train, he did not test it again before starting. The guard admits that he noticed that a horse-box had been attached to the train, but he states that on doing so he looked at the gauge in his van and, seeing that it was registering 25 inches, he was satisfied with it.

Considering how promptly the brake was applied when the train started, the leak must have been quite evident on the gauge as soon as the horse-box was attached, and it should certainly have been detected by guard Heenan if he had exercised due care in the matter.

This stoppage of the train should not, however, of itself have led to any further mishap had it not been for a mistake which was subsequently made in the East signal-box.

Signalman Lloyd was in charge of that box and signalman Wilkey was assisting him. Both these men state that they saw the Salisbury train start from No. 4 platform line, but neither of them noticed that it had been brought to a standstill, and they were quite in ignorance of that fact, though its tail end was standing close to their box.

There was at that time standing on No. 2 platform line a train of empty carriages, which had to be backed on to the up main line.

About a minute after the Salisbury train had started, Lloyd, who was then at the west end of the box, asked Wilkey, who was standing about half way between the centre and the east end of the box, whether the Salisbury train had gone, and Wilkey, after looking up the line, said "yes, all right." Lloyd accordingly put back the up main line starting signal and, after setting the points, lowered the backing signal for the empty train to be backed along the connection leading to the up main line. In response to this signal the empty train was backed, and its rear vehicle consequently came into collision with the engine of the Salisbury train which was standing at the fouling point.

Shunter Bundy, who was superintending the shunting operation, and who was riding in the rear vehicle of the empty train, states that before the collision occurred he had seen the lights of the Salisbury train, but that he thought that they were the lights of a train standing on the up Midland line, which is situated to the north of the up Great Western line. Bundy appears to have been keeping a good look out, and I do not consider that any blame attaches to him in the matter.

This collision must therefore be regarded as entirely due to the mistake made by signalman Wilkey in stating that the Salisbury train was gone when it was at that time standing on the line close to his box.

Wilkey's explanation is that he knew that he should have a good view of the tail lights of the Salisbury train when it passed the advanced starting signal—290 yards distant from his box. When therefore he was asked whether the train had gone, it was in that direction that he looked, and after pausing and seeing no signs whatsoever of the lights of the Salisbury train, he concluded that it must have already passed that signal, so he informed Lloyd that the train was gone.

As the train was at that moment standing with its rear end only a few yards beyond the box, Wilkey should, if he had been duly careful, have seen that it was standing there, and it is to his want of care that this accident must be regarded as having been mainly due.

Immediately that the first collision occurred the signalmen put all their signals to danger, including those of the down main line, which line, as above stated, had been fouled by some of the derailed carriages of the empty train. The 6.25 p.m. down express from London was however already due on that line, and the signals had been lowered for it; it arrived at the point where the derailed carriages were standing a few seconds after the first collision had occurred, and consequently came into collision with them. This second collision occurred so soon after the first that it is uncertain whether the down signals had been put to danger before it actually took place.

There seems to be no doubt that the signalmen took all the possible steps which they could after the first collision occurred. Neither they nor the driver of the down express train can be blamed in any way for the second collision, which was solely due to the arrival of that train so immediately after the line on which it was running had been fouled by the vehicles concerned in the first collision.

No blame appears therefore to attach to anyone in connection with the second collision.

I have, &c.,

The Assistant Secretary,  
Railway Department, Board of Trade.

P. G. VON DONOP,  
Lt.-Col., R.E.

#### APPENDIX.

##### DAMAGE TO ROLLING STOCK.

###### *Empty Passenger Train.*

Great Western Passenger Brake Van, No. 885.—  
Dock buffered; two buffer guides broken; iron  
headstock bent.

London and North Western, Third, No. 2,321.—  
Two buffer guides broken.

London and North Western Composite, No.  
1,091.—One quarter light broken.

Great Western, Saloon, No. 2,524.—One buffer  
pad crushed; lamp iron bent.

London and North Western, Brake, Tri-Com-  
posite, No. 648.—Off line, one pair of wheels;  
one end smashed; roof damaged; two buffer  
guides, one lamp iron, one side chain, one quarter  
light and top stepboard broken.

Great Western, Brake, Tri-Composite, No. 1,133,  
—Frame buckled; bogie damaged; top and bottom  
stepboard, step iron, side and door panels and  
side sill badly damaged; two buffer guides &c.  
broken.

London & North Western, Brake, Composite,  
No. 592.—Off line, two pairs of wheels: one end  
smashed; guard's projection and roof damaged;

buffer rod, drawbar hook and stepboards broken;  
door, pillar &c. damaged.

Great Western Brake, Tri-Composite, No. 1,315.—  
Off line, all wheels; body frame and bogie  
badly damaged.

###### *6.25 p.m. Passenger ex Paddington.*

Engine, No. 3,039.—Engine and tender off line,  
all wheels; engine damaged.

Great Western, Brake, Third, No. 3421.—End  
panels smashed; vacuum pipe, buffer guide,  
seven door lights; three quarter lights broken;  
guard's projection and step boards damaged.

Great Western, Composite, 1,434.—Off line, one  
pair of wheels; six door lights, four lamp tops  
broken; side of body, roof and step boards grazed.

Great Western, Brake, Third, No. 3,303.—Bogie  
step board broken; mouldings slightly damaged.

###### *8.40 p.m. Passenger ex Bristol.*

Engine, No. 72.—Leading wheels off line; side  
rod bent (R. H. side).

Great Western, Passenger Brake Van, No. 688,  
eight wheels.—Roof slightly damaged.

##### PARTICULARS OF PERMANENT WAY DAMAGED.

Fittings damaged, one elbow point rail broken.  
Rail broken, one. Rails damaged and bent, nine.  
Sleepers broken, one. Sleepers damaged, 22.  
Chairs to fittings under crossings broken, two.

Crossing chairs, or check chairs broken, 12.  
Chairs, ordinary, broken, 66. Fang bolts dam-  
aged, 122. Crossing bolts (to brackets) broken,  
10. Fish bolts broken, 20. Keys damaged, 66.

Printed copies of the above Report were sent to the Companies concerned on the 28th November.

#### LONDON AND NORTH-WESTERN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
May 21st, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 15th of April, the result of my inquiry into the circumstances under which a collision occurred at about 9.37 p.m. on the 12th April near Sutton Coldfield Station on the London and North-Western Railway between two passenger trains.

In this case, as the 9.35 p.m. up train from Sutton Coldfield to Birmingham, consisting of an engine and eight vehicles, was crossing from the Bay line at Sutton Coldfield Station on to the main up line, it came into collision with the 9.15 p.m. down train from Birmingham to Four Oaks, consisting likewise of an engine and eight vehicles, which was approaching the station on the main down line.

At the moment of the collision the engines were both on the down main line and they consequently met buffer to buffer, the collision being a very serious one.

The rear end of the leading vehicle of the down train was telescoped into the next vehicle behind it, completely demolishing four second-class compartments and instantly

killing a woman who was riding in one of them. Several other of the vehicles of each train were seriously damaged.

The two engines and the leading vehicles of each train were found locked together, being badly damaged, and one of the engines left the rails with two pair of wheels.

In addition to the one passenger who was killed complaints have been received from fifty-two passengers of personal injuries sustained, though it is believed that none of these are of a serious nature.

The driver, fireman and guard of each train were more or less injured, the fireman of the up train very severely so, his thigh being fractured.

The engines of both trains were eight-wheels-coupled side tank engines, fitted with the vacuum and hand brakes, each brake working blocks on six wheels.

The up train consisted of the following vehicles :—

				Wheels.
1	third-class brake	...	...	8
2	third-class carriages	...	...	8
1	composite carriage	...	...	8
1	first-class carriage	...	...	8
1	composite carriage	...	...	8
1	second-class carriage	...	...	8
1	second-class brake...	...	...	8

The down train consisted of the following vehicles :—

				Wheels.
1	second-class brake	...	...	8
1	second-class carriage	...	...	8
1	composite carriage	...	...	8
1	first-class carriage	...	...	8
1	composite carriage	...	...	8
1	first-class carriage	...	...	8
1	third-class carriage	...	...	8
1	third-class brake ...	...	...	8

All these vehicles were fitted with the vacuum automatic brake working blocks on all their wheels. All the brakes are reported as having been in good order.

The damage done to the rolling stock is given in the appendix ; that to permanent way was very slight.

#### *Description.*

Sutton Coldfield Station, near which this collision occurred, is a station on the Birmingham-Lichfield branch of the London and North-Western Railway.

The station is provided with up and down platforms, and the main lines run through them in a direction which is approximately north and south, the down line being on the western side. The signal-box is at the south end of the station 40 yards to the south of the south end of the down platform.

At the back of the down platform there is a bay platform with a line running alongside of it. This bay line has a connection with the down main line at a point 105 yards to the south of the signal-box, and just to the south of this connection again there is a cross-over road between the up and down main lines. These connections enable the bay line to be used both for the arrival of trains on the down main line and for the departure of trains on to the up main line, and signals are duly provided for those operations.

The down train concerned in this collision was running into the station on the down main line ; the up train was starting from the bay platform and was running on to the down main line and thence through the cross-over road on to the up main line. The two engines came into collision on the down main line just as the engine of the up train was entering the cross-over road.

The next block box to Sutton Coldfield in the Birmingham direction, which was open at the time of the accident, was Erdington, distant  $2\frac{1}{2}$  miles from it. Between Erdington and Sutton Coldfield are two intermediate stations, viz., Chester Road and Wylde Green ; the former of these is never a block station, and the latter only at times. The down train, however, stopped at both of these stations, and it is noted that the distance from Wylde Green to Sutton Coldfield is only  $1\frac{1}{2}$  miles.

The down main line is provided with the usual home and distant signals at Sutton Coldfield, the former being situated 170 yards to the south of the signal box, in which

position it protects the cross-over road described above, and the distant signal being 1,000 yards to the south again of the home signal.

The line from the south runs for about half-a-mile straight into the station, but a driver's view of his home signal is interfered with by an overbridge which crosses the line at a point 380 yards from that signal; he obtains, however, a good view of that signal when he is at a point 500 yards from it.

The gradient for a down train approaching the station is a gently falling one of 1 in 525 up to the distant signal; from that point up to the home signal it is a falling one of 1 in 125.

The night on which this accident occurred is described as having been dark but clear.

The Sutton Coldfield down distant signal post has two arms on it, one at the top of the post, and a second one lower down to give a driver a view of his signal in foggy weather. The back-light of the lamp connected with the top arm is visible from the Sutton Coldfield signal-box, while that of the lower one is not so. On the night on which this accident occurred it was only the lower lamp which was lighted.

Paragraph (d), Rule V., of the Block Regulations is as follows:

"Except when special instructions are issued to the contrary, when a train has passed the signal box and is brought to a stand at the starting signal or the advanced starting signal, the engine driver must understand that the lowering of the starting or the advanced starting signal is an indication that the line is only clear to the home signal at the signal-box in advance, and that he must regulate the speed of the train in the same way as if he had been verbally instructed to proceed under the section clear but station or junction blocked signal."

### *Evidence.*

*George Taylor*, signalman, states: I have been 19 years in the service of the Company, during 13 years of which I have been a signalman. I was on duty at Sutton Coldfield on Saturday night April 12, 1902, when the collision occurred. I came on duty at 3.10 p.m. to finish at about 1 a.m. I had been off duty since 1.30 a.m. the previous morning. I received the "Is line clear" for the 9.15 p.m. train from Birmingham (New Street), from Erdington at 9.20 p.m., and accepted it under the "warning" at that time, but Erdington did not repeat my signal; he offered it to me again at 9.27, when I again accepted it under the "warning," and that signal was repeated to me by the signalman at Erdington; I accepted it under the "warning" in order to allow the 9.35 p.m. train from Sutton Coldfield to Birmingham to leave the bay while the 9.15 p.m. train was running to Sutton Coldfield if necessary. I received the section signal at the same time that the train was accepted by me, viz., 9.27 p.m., and the collision occurred at 9.38 p.m. The train from Birmingham was coming, I should say, at about 10 miles an hour at the time of the collision, and appeared to be travelling at about the usual speed of trains going to stop at the home signal. The train leaving the bay would be travelling, I should say, at about four or five miles an hour. I sent the "Is line clear" signal to Erdington for the 9.35 p.m. at 9.32 p.m., and it was accepted at the same time, and at 9.37 p.m. the driver whistled out of the bay and I set my road and lowered my signals for him to proceed. Previous to this I had kept the road ready for the 9.15 p.m. train, in case I saw it approaching. All my signals were against the incoming train from Birmingham. I cannot see the back light of the down distant from my box, but I can see the top arm in daylight. I cannot say whether the lamp at the distant signal was burning clearly or not. I have no instructions that I may not accept a down train under the "warning" arrangement when I am about to cross a train from the bay line to the up main line. I have only been a fortnight in this box, but on every turn of duty I have done so. There is no repeater in the signal box to show

whether the light in the distant signal is in or out. At 9.27 p.m., I received the "train entering section" signal from Erdington. My statement that the back light of the down distant signal cannot be seen from my box is correct, if only the lower arm is lighted, but, if the lamp in connection with the top arm is lighted, I can see the back light of that lamp.

*Charles Smith*, signalman, states: I have been 42 years in the service of the Company, during 37 of which I have been a signalman. I was on duty in Erdington Box on Saturday night, April 12th, 1902. I came on duty at 5 p.m., and should have remained on duty until about 3 a.m. on the 13th. I had previously come off duty at 3 a.m. on the 12th. I received the "Is line clear" signal for the 9.15 p.m. from Birmingham, from Aston No. 2 at 9.14 p.m., and received the section signal at 9.19 p.m.; I offered the train to Sutton at about 9.21 p.m., as soon as I got warning that the preceding train was under cover, and it was accepted under the "warning" arrangement by Sutton at the same time, i.e., 9.21 p.m.; I did not acknowledge the "warning" signal, but offered it again to Sutton at 9.26, when the train was in my station, and Sutton again accepted it under Rule 5 at 9.26; I then acknowledged this signal; I then waited about three-quarters of a minute and then lowered my starter for the train to proceed. It had been standing at the platform about a minute when he started. My home and distant signal had remained at danger until the driver whistled, when I lowered the home for him to run into the platform. I am aware of the Rule that when trains are accepted under the warning arrangement the signalman should bring them to a stand at the home signal and verbally warn the driver. My reasons for not doing so on this occasion were to save delay to the train and to allow him to go and do his work at the station, and to go under the warning from the starting signal. I have never been in the habit of stopping at my box trains which stop at the station. Another reason for not stopping the train at my

box, was that I thought that passengers might possibly attempt to alight and sustain injuries.

*T. Harbidge*, driver, states :—I have been in the service of the Company 39 years—31 years as driver. I have been accustomed to work to Sutton during the whole of that time. On the 12th April, 1902, I booked on duty at 7.40 p.m. to work till 12.45 a.m., a period of five hours. I had booked off duty previously at 2.10 a.m. on that morning. In the course of my work I was appointed to work the 9.35 p.m. from Sutton Coldfield to Birmingham. I backed on to the train with my engine, No. 32, which was a side tank engine with the chimney towards Birmingham at about 9.20 p.m.; after attaching to my train I stood waiting for the signal to be lowered. The guard gave me the signal to start at 9.35 p.m., according to my watch; just before this time I opened my whistle and the signal was at once lowered and I started. I travelled from the bay line out on to the down main line and the front of my engine was just on the crossing points when I saw the white head light of a train approaching me; the engines were then only about six yards apart. I just had time to shut the regulator, and was in the act of reversing my engine when the collision occurred. I had not time to apply the brake. I should say I was not going more than four miles an hour at the time of the collision. I did not notice anything connected with the down signals. When I ran into Sutton Coldfield with the 8.40 p.m. from Birmingham I had noticed that the distant signal for Sutton Coldfield was shewing a poor light, but not bad enough for me to report it. It was a dark night, but fine. My engine was fitted with the vacuum brake and hand brake; they were both in good order. I can give no estimate of the speed of the down train.

*William Dale* brakesman, states : I have been 14 years in the service of the Company, during the whole of which time I have been a brakesman. I was guard on the 9.35 from Sutton Coldfield to Birmingham on Saturday the 12th inst., consisting of an eight coach train. I received a signal to go right away from the platform staff and passed it to the driver. At this time the starting signal was off. I had just got into my van and was taking the time away in my book when the collision occurred, and I was knocked down in my van. My train consisted of the following vehicles attached to the engine in the order given:—

	Wheels.
1 third-class brake ...	8
2 third-class carriages ...	8
1 composite ...	8
1 first-class carriage ...	8
1 composite ...	8
1 second-class carriage ...	8
1 second-class brake ...	8

All the vehicles were fitted with the vacuum brake, which was in good order. I estimate our speed at the time of the collision at four or five miles an hour. I booked away at 9.37 p.m.

*G. Simister*, driver, states : I have been in the service of the Company 27 years, during 10 of which I have been a regular driver. I have been accustomed during that time to work over the Sutton Coldfield branch. On the 12th inst., I booked on duty at 6.55 p.m., having been off duty for 8 hours 40 minutes, for a regular period of diagrammed duty of 5 hours and 29 minutes, after which I was to work the 2.50 a.m. Excursion Wolverhampton to Dudley—which would make

me due to book off about 5.0 a.m. In my regular duty I was appointed to work the 9.15 p.m. train Birmingham to Sutton Coldfield, which consisted of eight 50-foot vehicles. On running by the signal-box at Erdington I was not stopped nor was I warned by the signalman; we stopped there in due course, and also at Chester Road and Wylde Green. While travelling between Wylde Green and Sutton Coldfield I was on the look out on my side for the distant signal, but I saw no signal; the first signal I saw at Sutton Coldfield was the home signal at danger which I sighted when I came under the over bridge. I think that the distant signal cannot have been alight or I should have seen it. When I saw the home signal was at danger I at once did all I could to stop, applying the vacuum brake, opening the sand valves, and reversing my engine. My speed when I sighted my home signal was about 20 miles an hour. I was unable to pull up at the home signal, which I ran past at about 10 miles an hour. I saw the train coming out of the station just as I ran by the home signal, but could do nothing to avert the collision. I was thrown up against the reversing wheel and injured my right side, and was badly shaken. I had been on duty 2 hours and 40 minutes at the time of the accident. My engine was a side tank eight-wheeled engine, fitted with the vacuum and hand brake, with blocks on the wheels; they were in good working order. When leaving Erdington I received no warning of any sort that the Sutton Coldfield Station was blocked. I think that my train ran punctually the whole way. I attribute my not being able to bring my train to a stand at the home signal to the slipperiness of the rail. I had left Birmingham punctually and was arriving punctually at Sutton Coldfield. I have frequently been allowed to proceed forward under the warning arrangement, but in those cases I have always been stopped and warned verbally, but I do not know that I have ever received the warning signal at Erdington. The starting signal at Erdington was lowered just as we came to a stand at the platform. I had shut off steam before I sighted the home signal; I shut it off when I realized that I had missed the distant signal.

*Fred Johnson*, fireman, states : I have been in the service of the Company 12½ years, during 8 years 3 months of which I have acted as fireman. On April 12th I was firing for George Simister, having the same pre-arranged hours of duty. When running into Erdington we were not brought to a stand at the signal-box, and the signalman did not speak to us. The starting signal and distant on the same post came off as we came to a stand. When travelling between Wylde Green and Sutton Coldfield I was on the look-out on my side; after going some distance I said to my mate, "We must be getting somewhere near Sutton, but I have seen no distant signal." He replied, "Nor have I," and directly he exclaimed that the home signal was at danger; I then assisted him to stop the train, but we were unable to do so, and we came into collision with a train coming out of the station. I do not know the line particularly well. I estimate our speed at the time the driver sighted the home signal at 10 to 12 miles an hour. The driver immediately applied his brake; steam had previously been shut off. Our train did not seem to slacken speed before the collision occurred.

*John Smallman*, guard, states : I have been 13 years in the service of the Company, during 2½ of which I have been a guard. I signed on



duty at 3 p.m. on 12th April to work to 12 midnight. I was rear guard of the 9.15 p.m. train from Birmingham on April 12th. We left Erdington at right time; on approaching Erdington the distant and home signals were at danger; the driver whistled on approaching, and the home signal was lowered and we ran into the platform. The Erdington starting signal was on when the train ran into the platform, and when I turned round to give the signal for the train to leave the platform I noticed that the starter was off. I did not actually see it lowered. I stopped at Chester Road and Wylde Green in the usual course, and approaching Sutton I was booking my train, and was just going to look how the signals stood when the collision occurred. I did not see the signals at Sutton at all prior to the mishap. I had no conversation with the driver afterwards, nor did I see him. When we ran by the home signal I should estimate that we were going at the usual speed for a train that was going to stop at the main line platform at Sutton Coldfield, *i.e.*, about 10 miles an hour. My train consisted of the following vehicles attached to the engine in the following order:—

	Wheels.
1 second-class brake ...	8
1 second-class carriage ...	8
1 composite " ...	8
1 first-class carriage ...	8
1 composite " ...	8
2 third-class carriages ...	8
1 third-class brake ...	8

All the vehicles were fitted with the vacuum brake working blocks on all wheels of each vehicle. They were in good order. I did not notice that the train checked speed before the collision occurred, nor was the vacuum-brake applied; had it been applied I must have noticed it. I did not apply my brake, as I thought that the train was running into the station, and that it was not going too fast.

*J. E. Poole*, porter, states: I was on duty on Saturday night, April 12th, 1902. The Sutton distant signal lamp was lighted and carried to the signal by brakesman H. Wright at about 3 p.m., I saw him do so. Guard Westwood stopped at Wylde Green Station with the special from Sutton about 11 p.m., and told me that the Sutton down distant signal light was out. I went up to the signal and found the light was not actually out, but it was burning the wick; there was no oil in the cistern, and no light could be seen from the line. I trimmed the lamp and put some oil in and lighted the lamp.

*George Hind*, porter signalman, states: It is part of my duty to trim and light the lamps for the down distant for Sutton Coldfield, and the up distant for Wylde Green. I trimmed the lamps in question on the 12th April, and filled the cisterns as usual, and they should have burned all night. I had filled the cisterns about 12 o'clock; the lamps were lit about 2.40 p.m. I cannot account for the lamp having failed in the Sutton Coldfield distant. The up distant for Wylde Green burnt well. I also filled the cisterns of several other lamps and they all burnt well.

*Henry Wright*, brakesman, states: I left New Street on the 12th April at 12.30, and assisted in collecting the tickets at Wylde Green until about a quarter to three. I then took out the lamps of the down distant signal for Sutton, and up distant for Wylde Green; I then walked on to Sutton Coldfield to perform my usual duties. The lamps were trimmed by the porter-signalman and lighted by me before I left Wylde Green. The lamps were burning clear and bright when I put them in the posts, and they appeared to me to be in an efficient condition. I am certain I did not spill any of the oil.

### Conclusion.

The circumstances under which this accident occurred were as follows:—

There is an up train to Birmingham which starts from the bay platform at Sutton Coldfield at 9.35 p.m., while there is a down train from Birmingham, due to arrive there on the down main line, three minutes later, *viz.*, at 9.38 p.m. As pointed out above, the up train, in travelling from the bay platform line to the main up line, has to cross the main down line a short distance outside the station.

On the evening in question, signalman Taylor, who was on duty in the Sutton Coldfield box, was offered the down train by the signalman in the Erdington box at 9.27 p.m., and he accepted it forthwith, under the "Line clear but station blocked" signal.

Taylor explains that his reason for accepting the train under this signal was that he wished to be at liberty, if necessary, to start the 9.35 p.m. up train from Sutton Coldfield whilst the down train was running from Erdington.

Signalman Smith, who was on duty in the Erdington signal-box, fully admits that the down train was accepted under the "Line clear but station blocked" signal. He also admits that he did not carry out the rule instructing him that when a train is accepted under this signal it should be stopped at the box and the driver verbally warned that the station ahead was blocked. In lieu of doing so he allowed the train to run past his box into the station without stopping it or warning the driver, though he kept the station starting signal at danger until the train had come to a stand. When, therefore, the station work was completed, and the starting signal had been lowered, the train started on its journey without the driver having received any warning that the line was only clear up to the Erdington home signal.

At 9.37 p.m. the driver of the up train at Sutton Coldfield, seeing that his train was ready to start, whistled to the signalman in the Sutton Coldfield box to lower the signal for him to do so.

At this time the road was set for the down train to run into Sutton Coldfield Station, but the home and distant signals for it were both at danger. Signalman Taylor states that on hearing the whistle from the up train he at once looked up the line to see whether he could see any signs of the approach of the down train. Seeing no signs of it he decided to allow the up train to start, so he at once altered the road and lowered the up starting signals for it to do so. The up train accordingly started, but when crossing the down line it came into direct collision with the down train which arrived simultaneously at that point, having passed its home signal at danger.

Driver Simister, who was in charge of the engine of the down train, states that he left Erdington Station without having received any warning that the Sutton Coldfield Station was blocked. He stopped at both Chester Road and Wylde Green Stations, and left the latter at just about his booked time. He states that he missed the Sutton Coldfield distant signal altogether, but that when passing under the overbridge, 380 yards from the home signal, he sighted that signal and saw that it was at danger. Simister states that at this time steam was turned off, as before reaching this point he had realized that he had missed the distant signal, and he had on discovering that fact at once turned off steam. He states that on seeing the home signal at danger he at once made every endeavour to stop his train, but that owing to the slipperiness of the rails he was unable to do so before passing the home signal, and the collision consequently occurred.

This collision was clearly due, firstly, to signalman Smith having neglected to carry out his instructions with regard to warning the driver that the line was only clear to the Sutton Coldfield home signal, and, secondly, to driver Simister's having failed to bring his train to a stand before passing the Sutton Coldfield home signal which was at danger.

Signalman Smith's explanation of his having omitted to stop the train at his box and to warn the driver verbally is, that he wished not to delay the train by stopping it at his box, and that he feared that if he did so some of the passengers might attempt to get out and might thereby injure themselves; he therefore allowed the train to run past his box into the station, but he kept the starting signal at danger, considering that under paragraph (d), Rule V., Block Telegraph Regulations, the lowering of the starting signal would intimate to the driver that the line was only clear to the Sutton Coldfield home signal.

Had there been no station at which the train was due to stop between the signal box and the starting signal, and had the train been consequently brought to a stand solely by the fact of the starting signal being at danger, the subsequent lowering of that signal should certainly have been an intimation to the driver that the line was clear only up to the next home signal. But in this case the train was brought to a stand at the station platform, not because the starting signal ahead of that platform was at danger, but because the train was due to stop there, and the fact of the starting signal being at danger when it stopped there gave, therefore, no intimation to the driver that when it was lowered the line was only clear to the home signal.

Signalman Smith was not, therefore, justified in omitting to carry out his definite instructions to stop the train at his box and to verbally warn the driver, and his omission to do so renders him largely responsible for this accident.

As regards driver Simister's responsibility in the matter it is clear that, firstly, he was not in any way warned when leaving Erdington that his train had only been accepted under the "Section clear but station blocked" signal; and secondly, it was subsequently found that the light in the Sutton Coldfield distant signal was burning so badly that it was probably invisible from the line at the time his train ran past it.

On the other hand Simister himself admits that he saw that the Sutton Coldfield home signal was at danger when he passed under the overbridge situated 380 yards from it, and that previous to reaching that point he had realized that he had missed his distant signal and he had turned off steam accordingly. The speed of his train when passing under the overbridge was probably, therefore, not great, and Simister himself estimates it at not more than 20 miles an hour. Under these circumstances Simister should have had no difficulty whatever in bringing his train to a stand before it reached the home signal, and his explanation of his having failed to do so cannot be accepted in any way as satisfactory.

Guard Smallman, who was guard of the down train, states that the train did not seem to be checked in any way whilst approaching Sutton Coldfield, and that he did not notice the vacuum-brake applied at all; had driver Simister made any real attempt to stop the train when running from the overbridge it would have been almost impossible for it to have escaped the notice of the guard.



I am therefore of opinion that no real endeavour was made by driver Simister to stop his train, and it seems, therefore, highly probable that he was not keeping a proper look-out, and that, consequently, he did not realize that the home signal was against him as early as he states he did.

In spite, therefore, of his not having been duly warned at Erdington, and in spite of the distant signal lamp being invisible, driver Simister must be held largely to blame for this collision, and on him and on signalman Smith the responsibility for this accident must mainly rest.

After the accident the lamp in the Sutton Coldfield distant signal was examined, and it was found to be nearly out owing to its being short of oil. No satisfactory explanation can be given for this deficiency, for which porter Hind, whose duty it was to fill the oil-cistern, must be held responsible.

The fact of the upper lamp on the distant signal post not having been lighted on this occasion may have contributed to the accident, as the signalman in the Sutton Coldfield box, being unable to see the back-light of the lower lamp, had consequently no means of knowing that the latter was burning badly.

It appears to have been the practice latterly to light only the lower lamp on this post, and not the upper one; this is clearly wrong, and the Company should take steps to ensure that the upper lamp is in future always lighted.

The only other point which calls for notice in connection with this accident is the use of the "Section clear but junction blocked" signal on the section between Erdington and Sutton Coldfield. Considering that the Sutton Coldfield down home signal only just protects the cross-over road between the up and down lines, and considering that the approach to that signal is down a gradient of 1 in 125, I do not think that the situation is one in which this warning signal can safely be made use of; the Company should therefore consider the advisability of prohibiting its use over this section in future.

The Assistant Secretary,  
Railway Department, Board of Trade.

I am, &c.,  
P. G. VON DONOP,  
Lieut.-Col., R.E.

#### APPENDIX.

##### *Damage to Rolling Stock.*

Engine No. 751.—Steel tubeplate bent; whistle stand broken; left-hand cylinder and covers broken; steam chest cover broken; right-hand leading sand-box broken; frame stay broken; right and left-hand frames bent at leading end; footplate slightly bent; leading and trailing buffer planks broken; buffer angle irons bent; trailing buffers broken; vacuum pipe at front end broken, and lamp iron broken.

Engine, No. 32.—Steel tubeplate bent; whistle stand broken; left-hand cylinder and covers broken; steam chest cover broken; right-hand leading sand-box broken; frame stay broken; right and left-hand frames bent at leading end; footplate slightly bent; bunker tank damaged; leading and trailing buffer planks broken; buffer angle irons bent; trailing buffers broken; vacuum pipe at front end broken, and lamp irons broken.

Second-class brake, No. 26.—Underframe damaged, including diagonals, buffer castings and buffer rods; two second-class compartments, accumulator boxes, vacuum brake cylinder underneath, and end of guard's compartment smashed; both guard's ogees and head-stock and floor of guard's compartment broken. Train pipe and heating pipes and step boards damaged.

Third brake, No. 919.—Underframe badly broken, including diagonals, buffer castings and buffer rods; heating pipes and vacuum brake pipes, end and side of guard's compartment, and one ogee smashed in; and one guard's ogee damaged; floor of guard's compartment, and bogie under guard's compartment and step boards damaged; also end panels and passenger

communication and head stock at passenger end damaged.

Second-class, No. 234.—Underframe badly broken, including diagonals, buffer castings, buffer rods and heating pipes; body badly damaged; three second-class compartments and partitions smashed; also floor and roof at one end damaged.

Composite, No. 548.—Step boards, buffer rods and knees, buffer castings, quarter lights and carriage diagonals broken; and buffer rods bent.

Third, No. 792.—Buffer castings, carriage diagonals, step boards, underframe and one end damaged; also buffer rods, buffer knees, head-stock bent; and quarter lights broken.

Third, No. 413.—End panels, head-stock, step boards, quarter lights, vacuum train pipe and underframe damaged; buffer castings, buffer rods, buffer knees, and diagonals broken.

Third, No. 725.—One diagonal and quarter lights broken; also buffer knees and rods bent.

Third, No. 897.—One diagonal and quarter lights broken; also buffer knees and buffer rods bent.

Third, No. 877.—Guard's ogee light and quarter lights broken; and buffer rods bent.

First-class, No. 156.—Diagonals, buffer castings and quarter lights broken; also buffer knees and buffer rods bent.

First-class, No. 98.—Diagonals, buffer castings and quarter lights broken; also buffer rods and buffer knees bent.

Composite, No. 1,000.—Diagonals and knees,

quarter lights, buffer castings and buffer cones broken ; also buffer knees and buffer rods bent.

Composite, No. 691.—Quarter lights broken.

Second brake, No. 86.—Quarter lights broken.

Second-class, No. 174.—Quarter lights, buffer

castings and diagonal broken ; also buffer knees and buffer rods bent.

Composite, No. 215.—Quarter lights, buffer castings and diagonal broken ; also buffer knees and rods bent.

Printed copies of the above Report were sent to the Company on the 9th December.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.

September 8, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 16th August, the result of my enquiry into the circumstances under which a collision occurred at about 9.50 a.m. on the 7th August at Crewe Station, on the London and North-Western Railway, between a passenger train and some empty coaches.

In this case, as the 9.50 a.m. down passenger train from Crewe to Manchester, consisting of an engine, tender, and eight vehicles, was crossing at the north end of Crewe Station from the down platform line to the down main line, its rear vehicles were run into by two empty coaches which had been propelled along the down main line foul of the crossing. The empty coaches came into collision with the brake-van of the passenger train, and caused two empty saloon carriages, which were in rear of it, to leave the line. One of these saloon carriages in its derailment struck against two cast iron columns supporting the station roof, and, these two columns breaking, a portion of the roof, about 25 yards in length, fell down on to the permanent way and the rear portion of the train. One of the roof girders in its fall crashed through the roof of one of the saloons, but, fortunately, both the saloons were empty and no personal injuries were sustained by either passengers or railway officials.

The train was travelling very slowly at the time of the collision, and the coupling between the brake-van and the saloon carriage behind it parted, so that the train quickly came to a stand.

The engine of the passenger train was a compound tender engine, fitted with a steam brake working blocks on six of its wheels and on the six tender wheels, and with a hand brake working the same blocks.

The train consisted of the following vehicles, attached to the engine in the order given :—

					Wheels.
One third class brake-van	...	...	...	...	8
Two third class carriages	...	...	...	...	8
Two composite carriages	...	...	...	...	8
One second class brake-van	...	...	...	...	8
Two family saloons	...	...	...	...	6

The train was fitted throughout with the vacuum automatic brake, working blocks on all the wheels of the eight-wheeled vehicles and on four wheels of each of the six-wheeled ones. All the brakes are reported as having been in good order.

The damage to the rolling stock and permanent way is given in the Appendix.

### *Description.*

Crewe Station lies approximately north and south, the down platform and down lines being on its western side.

About fifty yards to the south of the station the up and down lines each bifurcate, forming two up and two down lines of rails running through the station. These are arranged in the following order from the down platform :—

Down platform line.  
Down main line.  
Up main line.  
Up platform line.



in good order. It seemed to act quite well when the accident occurred.

*Frederick James Plant*, guard, states: I have been in the service of the Company 25 years, during 22 years of which time I have been a passenger guard. I came on duty on August 7th at 5 a.m. to work until 3.21 p.m., having booked off duty at 3.21 p.m. the previous day. I was guard of the 9.50 a.m. passenger train, Crewe to Manchester, and my train consisted of the following carriages, attached to the engine in the order given:—

	Wheels.
One Third-class Brake .....	8
Two Third-class Carriages.....	8
Two Composites .....	8
One Second-class Brake.....	8
Two Saloons.....	6

The train was fitted with the automatic vacuum brake, working blocks on all wheels of the 8-wheel carriages, and on four wheels of each of the 6-wheel saloons. The brake was in good order. We started from Crewe punctually at 9.50 a.m., and I was riding in the rear brake van in front of the two saloons. As we were leaving the station I was looking out of my window on the platform side, and I felt a shock in my van, when I at once went to the other side and pulled the window down and looked out, and saw that the carriages coming down the main line had collided with the saloons behind me. When I saw what had happened I at once applied the vacuum brake. At the time I was looking out the saloons were not uncoupled from my van, but after I applied the vacuum brake I found that they were uncoupled. Both of the saloons were derailed and were leaning over towards the up platform. There were no passengers in them. I had joined this train at Crewe, and when I first joined, the two saloon carriages were not on the train, but were attached subsequently. I was going to drop one of these saloons at Chelford and one at Stockport. I estimate the speed at the time the accident occurred at five or six miles an hour. The brake acted very well.

*George Bebbington*, inspector, states: I have been in the service of the Company 23 years, during 12 years of which I have been an inspector at Crewe. I came on duty at 9 a.m. on the 7th August, to work until 6.30 p.m., having been off duty since 6.30 p.m. the previous day. I remember the shunting engine drawing the carriages of the 9.50 a.m. Manchester train out of the main line and putting them on to the down platform line; this would be at about 9.40 a.m. The shunting engine then went back to the down main line and drew a post-office van out of it and put it on to the turntable at the south end. The up side shunting engine then came from the up main line, and put two coaches in the down main line; this was done under the superintendence of the up side shunter. I then arranged to put two coaches on to the rear of the 9.50 a.m. train, and I then went across to the up side of the station to start the 9.50 a.m. train to Stafford. After starting that train I walked down the up platform, and when I got to the door of the stationmaster's office I heard a crash. I went down to the scissors crossing and saw what had happened. At the time when I went across to the up side of the station there was an engine with three vehicles standing south of No. 2 signal-box. I myself had given no orders or instructions to the driver. When I saw what

had happened I went back and asked the driver who had called him down, and he made no answer, but about five minutes later I asked him again, and he then said it was I who had given him the signal. I am quite positive that I gave him no such signal. The operation is one which is generally carried out each morning. The signal is usually given either by myself or the shunter after getting permission from the signalman in No. 2 box. This operation is only carried out after first communicating with the signalman. It is customary to leave vehicles standing on the down main line with their brakes off.

*Joseph Johnson*, signalman, states: I have been 26 years in the Company's service, 25 of which I have been a signalman. I am now employed in No. 2 signal box at Crewe, where I have been for about 12 years. I came on duty at 6 a.m. on August 7th, and worked until 2 p.m., having been off duty since 2 p.m. on the previous day. I was working the north end of the frame. At about 9.30 a.m., as near as I can judge, our shunting engine drew the coaches of the 9.50 a.m. Manchester train from the down main line, and propelled them into the down platform line. After the down main line had been cleared of the vehicles of the 9.50 a.m. train, I gave the scissors crossing box a signal indicating that I was placing two vehicles on the down main line; these vehicles were placed on the down main line by the up side shunting engine, which then returned to the scissors crossing. The first I knew of the St. Helens engine was my being told by my mate that it was standing at South Junction with three or four vehicles, which had to be placed in the down main line. This engine with its vehicles, drew down to the south end of my signal box, and my mate told me that it had come to a stand at that point. After these coaches had come to a stand, I pulled over our disc, to ask the permission of the man in the scissors crossing box to allow me to put them on the down main line, but the scissors crossing man did not pull over his disc. The engine and coaches did, however, move forward, although I never saw them move, until they were in the down main line. My down home signal was at "danger," and must have been in that position when the train passed it. It is customary to allow vehicles to be placed in the down main line even if the down home signal is at "danger" when there is an inspector, or shunter, to superintend the operation. This is only done after the inspector or shunter has obtained permission from me, and when I have obtained the necessary permission from the scissors crossing cabin, and it is only done in carrying out purely shunting operations. I did not see any inspector or shunter on the ground give any signal for this train to move. After the coaches had got on the down main line I called my mate's attention to it, and immediately afterwards the scissors crossing gave us the "obstruction" signal. I am quite sure that I, myself, gave no signal for the train to move.

*William Chesters*, signalman, states: I have been 22 years in the service of the Company, during the whole of which period I have been a signalman. I came on duty at 6 a.m. to work to 2 p.m., having been off duty since 2 p.m. the previous day. I was on duty in the scissors crossing box. On the morning in question the coaches for the 9.50 a.m. Manchester train were on the down main line, when the 9.25 a.m. Crewe to Liverpool left, and whilst they stood there, there was nothing between them and the scissors crossing.



9.20 a.m. South Junction gave me the "Is line clear" signal for the engine of the 6.55 a.m. train from St. Helens, which was propelling three empty vehicles, to stand on the down main line, and I accepted the empty coaches by one beat on the bell. The engine then propelled the coaches through the crossing at South Junction, and came to a stand on the down main line, as soon as they had cleared the points at South Junction. At this time, the coaches of the 9.50 a.m. train stood on the down main line, and if my memory does not deceive me, the post office van, off the down newspaper train, stood behind them also on the down main line at our home signal. The shunting engine subsequently drew back the post office van and the coaches for the 9.50 a.m. train to Manchester on the main line, and set the Man-

chester train in the down platform line. After the down main line had been cleared up to my home signal, the engine of the St. Helens train brought the coaches up to my box and stood there, and after that time I had nothing personally to do with that train. After a little time my mate called my attention to the fact that the St. Helens train had passed our home signal, which was at danger. My mate (Johnson) had done all the work in our box in connection with the placing of the two coaches off the 8.15 a.m. train from Liverpool on to the down main line, and whilst he was so engaged I was occupied with other work. I did not see Inspector Bebbington or any other person give the driver of the empty coaches a signal to draw ahead.

### *Conclusion.*

The immediate cause of this collision was the fact of certain vehicles having been shunted along the down main line from the south end of the station at the same time that a train was crossing on to that line through the scissors crossing at the north end of the station.

The evidence as to the circumstances under which these vehicles were shunted along the down line is contradictory.

The signalman in the South signal-box No. 2 had asked the signalman in the Scissors Crossing box for permission to carry out this shunting operation, but this permission had not been granted, and it is allowed that no signal had been lowered nor had any permission been given by the signalman in either box for the operation to be carried out.

Driver Leevsley, who was in charge of the engine which was carrying out the shunting operation, admits that the down main line signal was not lowered for him, but he asserts that he received a hand signal from Inspector Bebbington to proceed, and that it was on that signal that he acted. His fireman corroborates this statement.

It is admitted that it is customary in carrying out purely shunting operations for vehicles to be shunted along the down main line from the south end of the station even when the main line signal is at danger, but it is stated that this is never done except when there is an inspector or shunter present to superintend the operation, and when the latter has first communicated with the signalman in South signal-box No. 2.

Inspector Bebbington absolutely denies having given any signal on this occasion to driver Leevsley, and it is established that he had had no communication whatever with the signalman in South signal-box No. 2 on the subject.

The various duties which Inspector Bebbington carried out immediately previous to the accident seem to render it very improbable that he could have been in a position to have given the signal as alleged by Leevsley. It is also remarkable that when Leevsley was first asked as to who gave him instructions to move he made no reply, and it was only subsequently that he stated that it was Inspector Bebbington who had done so.

It therefore appears probable that Leevsley carried out the operation without receiving the necessary instructions to do so, and that his doing so was the immediate cause of the accident.

It should be noted, however, that interlocking is specially provided between the Scissors Junction signal-box and the South signal-box No. 2 to prevent the down main line signal being lowered while the crossing from the down platform line to the down main line at the north end of the station is in use. This interlocking, which was doubtless provided specially to guard against the very accident which occurred on this occasion, is, however, useless if permission is given for vehicles to be shunted past the down main line signal at danger. Even though this disregard of signals is only permitted in the case of shunting operations, and only then when the operation is carried out under the superintendence of a shunter, it is clear from this accident that it is a method of working which is liable to lead to misunderstandings which may result in accidents. The Company should therefore consider the advisability of forbidding any disregard of the signals when passing vehicles into this down main line even in purely shunting operations.

It must also be pointed out that the use of a portion of the down main line through Crewe Station as a storage siding for carriages cannot be regarded as a satisfactory arrangement, and this accident has clearly brought to light the danger resulting from it.

The line is arranged as a running line and, as it is to a certain extent used as such, it is not provided with the traps which are necessary to make it safe for use as a siding. I am informed by the Company that alterations are to be carried out at Crewe by which the present down main line will altogether cease to be a running line, and will be arranged as a siding pure and simple; it is to be hoped that this alteration will be speedily carried out, for as long as the present arrangement obtains there will always be a danger of the occurrence of collisions similar to the one now under consideration.

Finally, the erection of cast-iron pillars on the permanent way between the lines of rails is, as has been previously pointed out in a Board of Trade report, a very undesirable arrangement, as the derailment of any vehicle may result in the fall of the roof. It is a form of construction which is never used at the present day, but it still obtains in some of the older stations; every opportunity should be taken in carrying out alterations to stations to remove this undoubted source of danger.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
Lieut.-Col., R.E.

#### APPENDIX.

##### DAMAGE TO ROLLING STOCK.

No. 138, Family Saloon.—Roof damaged beyond repair. Side panels and two luggage doors broken. Interior and vestibule fittings badly damaged. Step-boards and leg-irons torn off one side. One end badly damaged. Underframe and brakework damaged. Wheels forced out of gauge.

No. 90, Family Saloon.—Roof and one end damaged. Side bulging out. Step-boards and leg-irons torn off one side. Side panels damaged.

No. 1102, Composite.—Waist panel, top and bottom quarter panels and corner pillar broken. Axle-boxes, step-board, leg-iron, and draw-bar

plate broken. Door-handles, leg-irons, buffer-rods, and draw-bars bent.

No. 1837, Third Class.—Corner pillars, end panels, quarter panels, door panels, fascia mouldings, door-handles and commode handles broken. Quarter lights, leg-irons, step-boards, and head-stock cap broken. Leg-irons, draw-bars, and couplings bent.

No. 155, Second Brake.—O. G. damaged. Cornice, panels, step-boards, door-handles and commode-handles damaged. Screw coupling broken. Draw-bar bent.

##### DAMAGE TO PERMANENT WAY

Three permanent-way and crossing chairs broken.

Five B1 8-inch chairs broken.

Two rails bent.

Two point-rods bent.

Seventy feet length of station-roof destroyed.

Printed copies of the above Report were sent to the Company on the 2nd October.

#### LONDON, BRIGHTON, AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
August 15th, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 15th July, the result of my inquiry into the circumstances under which a collision occurred at about 8 p.m. on the 9th July at Kemp Town Station, on the London, Brighton, and South Coast Railway, between a passenger train and the buffer stops.

In this case, as the 7.30 p.m. passenger train from Brighton to Kemp Town, consisting of an engine and eleven vehicles, was entering Kemp Town Station, the driver failed to bring it to a stand alongside the platform, and it came into collision with the buffer-stops at the end of the line.

The speed of the train at the time of the collision was not great, so comparatively little damage was done either to rolling stock or to the permanent way, but seventeen passengers have complained of personal injuries sustained.

The engine was a six-wheels-coupled tank engine, running bunker first; it was fitted with the Westinghouse automatic brake, working blocks on the six coupled wheels, and with a hand brake working the same blocks.

The train consisted of the following vehicles, attached to the engine in the order given :—

							Wheels.
2 third-class carriages	...	...	...	...	...	...	4
2 third-class carriages	...	...	...	...	...	...	6
1 third-class brake	...	...	...	...	...	...	4
1 third-class carriage	...	...	...	...	...	...	4
1 second-class carriage	...	...	...	...	...	...	4
1 first-class carriage	...	...	...	...	...	...	6
1 third-class carriage	...	...	...	...	...	...	4
1 third-class brake	...	...	...	...	...	...	4
1 van	...	...	...	...	...	...	4

These vehicles were all fitted with the Westinghouse automatic brake, working blocks on four wheels of each vehicle.

Details of the damage to rolling stock and permanent way are given in the Appendix.

#### *Description.*

Kemp Town Station, where this accident occurred, is the terminal station of the Brighton to Kemp Town branch of the London, Brighton, and South Coast Railway.

The line is a single one from Lewes Road to Kemp Town, and it runs into Kemp Town Station in a direction which is approximately from north to south. The line terminates in buffer-stops, and there is a platform, 148 yards in length, running along the west side of it.

About 184 yards north of the station the line enters a tunnel, which is 946 yards in length, and the signal-box is on the west side of the line, close to the entrance to this tunnel.

The following distances from the buffer-stops at the end of the line are noted :—

						Yards.
To the north end of the station platform	...	...	...	...	...	148
To the signal-box	...	...	...	...	...	280
To the south end of the tunnel	...	...	...	...	...	290
To the down home signal	...	...	...	...	...	332
To the north end of the tunnel	...	...	...	...	...	1,236
To the down distant signal	...	...	...	...	...	1,238

The line through the tunnel is on a gradient of 1 in 213, falling towards Kemp Town, and it is on a slight curve ; from the south end of the tunnel up to the buffer-stops the line is level.

The day on which the accident occurred had been a fine one, but heavy rain had come on about 7.15 p.m., and it was still raining at the time of the accident.

The next station to Kemp Town is Lewes Road, distant 1 mile 14 chains from it.

#### *Evidence.*

*Harry Mitchell*, driver, states : I have been 23 years in the service of the Company, during five years of which I have been driving passenger trains. Previous to that I was employed on goods trains. I came on duty on July 9th at 1 p.m. to work till 10.45 p.m. I booked off at 10.45 p.m. on the 8th July. I was in charge of the 7.30 p.m. train from Brighton to Kemp Town. My engine was a six-wheels-coupled tank engine, running bunker first. It was fitted with the Westinghouse automatic brake working blocks on the six coupled wheels, and with hand brake working the same blocks. The brakes were in fairly good order, the blocks wanted a little repair on one side ; the brake-blocks on both sides were nearly worn out, but they had answered my purpose all that day, being dry weather. I started out at 1 p.m. with that engine. I had 50 lbs. of pressure on my indicator when I started working. As soon as I took the engine I ascertained that the brake-blocks were worn ; I ascertained this by inspection. I do not consider that they were sufficiently worn to interfere with the

effective working of the brake. I was quite satisfied with the condition of the brake for a light load, but I was not satisfied with it for the 11 coaches which I had on the 7.30 p.m. train. We started from Brighton at 7.40 or 7.42 p.m. There were 11 vehicles in the train. I considered that my brake power was not sufficient for such a heavy load as 11 vehicles. I did not take any steps at all in this matter ; it is not my place to make any remonstrance in a case of this sort. I am aware of the rule which states that drivers have to satisfy themselves before starting that their engine is in proper order. As a rule I am in the habit of satisfying myself on this point, and if I find anything that is unsatisfactory I bring it to the notice of the foreman. On this occasion I did not bring it to the notice of the foreman when I did not consider my brake power sufficient for the train. I did not do so because there was hardly time, and I thought I could manage the train as I had managed the previous ones. After leaving Brighton we stopped at London Road and Lewes Road. I made use of



the automatic brakes on stopping at both of these stations; the brakes acted fairly well considering the load. At Lewes Road I had a little difficulty in stopping the train, but not particularly at London Road. At London Road we picked up a large number of passengers and the train consequently became heavier. I cannot say exactly what time we left Lewes Road. On approaching Kemp Town the distant signal was off for me, as also was the home signal in the tunnel. I estimate my speed on passing the home signal in the tunnel at 10 miles per hour. I had turned off steam immediately on entering the tunnel and never turned on steam again. The first time after leaving Lewes Road that I applied the automatic brake was just when we were approaching the Kemp Town signal-box. When I reached the end of the platform I realized that I could not stop my train. I at once reversed my engine, gave her steam, then I applied the automatic brake full on. In spite of all this my train did not stop, and we collided with the buffer-stops. We were going very slowly at the time of the actual collision, and we hardly felt the shock on the engine at all. It had been very fine all day up to about 7.15 p.m., and it then commenced to rain heavily, and it was raining heavily at the time of the accident. I consider that the reason why I was unable to stop my train was on account of the brake on the train not being sufficient considering the number of passengers. I had made no remark to the guard about the brake power not being sufficient for so many passengers. The inefficiency of the brakes was due to the heavy load of passengers, which made the brake-blocks ride under the wheels instead of being on the centre of the wheels.

*Herbert Baldwin*, fireman, states: I have been about five years in the service of the Company, during two of which I have been fireman. I worked the same hours as driver Mitchell on the 8th and 9th July, and was with him on the 7.30 p.m. train Brighton to Kemp Town. Up till the starting of the 7.30 p.m. train there was, as far as I could see, no fault to be found with the automatic brake. It had been used on several occasions and there had been no difficulty in stopping the train with it. Before leaving Brighton with the 7.30 p.m. train the driver made no remark to me at all about the condition of the automatic brake. On stopping at London Road Station the automatic brake was made use of, and there was no particular difficulty in stopping at that station; the driver made no remark to me at that point about the brake. The automatic brake was again made use of when we stopped at Lewes Road, and no difficulty was experienced there in stopping the train. The driver made no remark to me there about the condition of the brake. I should say that when we passed the home signal our speed was not quite 10 miles per hour. Steam was turned off about 50 yards after we had entered the tunnel and was never applied again. The automatic brake was applied soon after we passed the home signal. It was momentarily released and applied again. When we reached the end of the platform I realised that the driver would not be able to stop his train. I thought when we reached the end of the platform our speed was not more than 5 miles per hour. The driver reversed the engine and put on full steam. I had applied my hand-brake directly we left the tunnel, and at the end of the platform it was on as hard as I could get it. I should estimate the speed of my train, when we ran into the buffer-stops, at 7 miles per hour. It seemed as though we had increased speed

when running alongside the platform. We felt the shock of the collision on the engine, but not wonderfully much; neither the driver nor I was hurt at all. I attribute the reason of our not being able to stop the train to its being heavily loaded.

*Robert Sims*, guard, states: I have been just on five years in the service of the Company, and have been passenger guard from the first of this month. I came on duty on July 9th at 1.45 p.m. and worked till 11.40 p.m. I came off duty on the 8th July at 11.30 p.m. I was guard of the 7.30 p.m. Brighton to Kemp Town train. The train consisted of the following vehicles, attached to the engine in the order given:—

	Wheels,
1 third-class carriage ... ..	4
1 third-class carriage ... ..	4
1 third-class carriage ... ..	6
1 third-class carriage ... ..	6
1 third-class brake ... ..	4
1 third-class carriage ... ..	4
1 second-class carriage ... ..	4
1 first-class carriage... ..	6
1 third-class carriage ... ..	4
1 third-class brake ... ..	4
1 plain van ... ..	4

These vehicles were all fitted with the Westinghouse automatic brake, working blocks on four wheels of each vehicle. My automatic brake was in good order; I had carried out the instructions about testing it before I left Brighton, and found everything satisfactory. The driver made no remark to me at all on the condition of the brake, and I have every reason to imagine that it was in first rate order. I had made four trips from Brighton to Kemp Town and back that day with the same engine before starting with the 7.30 train. The biggest load we had had on any of these previous occasions was seven vehicles. No difficulty had been experienced with the automatic brake on any of these journeys. We left Brighton at 7.45 p.m.; I cannot say exactly what time we arrived at London Road. No difficulty was experienced in stopping the train at London Road. I noticed there was a little difficulty in stopping the train at Lewes Road; it was not that we over-ran the platform, but I applied my hand-brake to steady the train; the automatic brake, however, appeared to me to be working all right. The pressure on my indicator was over 50 lbs., and when I entered the tunnel after leaving Lewes Road the indicator still showed over 50 lbs. Just as we were approaching the home signal in the tunnel I looked out and saw that the signal was off for us, but it occurred to me that the driver was going rather fast. I estimate the speed at that point at 10 miles an hour. I was just going to put my hand brake on when the blocks were applied by the automatic brake. The automatic brake seemed to check the speed of the train a little, and then it seemed to go faster. I cannot say whether the automatic brake was ever taken off again. After applying my hand brake as hard as I could I looked and saw that the automatic brake was then fully applied. When the train reached the end of the platform it seemed to quicken speed, and I can give no idea of what our speed was when the collision occurred. I felt the shock of the collision severely; I was thrown from one end of the brake to the other. I cannot account for the driver being unable to stop his train. I only commenced running between Brighton and Kemp Town on the Sunday previous to the accident. I consider that the speed of the train when passing the home signal at Kemp Town was decidedly faster than they

usually go at that point. I frequently do have to apply the hand brake at Lewes Road, so there was nothing unusual in my doing so on this occasion.

*George Boyett*, head porter, states: I have been just over 26 years in the service of the Company and am now employed as head porter at Kemp Town station, and have held that position for five years. I remember seeing the 7.30 p.m. train from Brighton to Kemp Town running into Kemp Town Station on the evening of the 9th of July. I was standing on the platform about 40 yards from the buffer-stops when the train ran into the station. I first saw the train as it was coming out of the tunnel. I noticed nothing special about the speed of the train as it came out of the tunnel. When the engine passed me I thought it was going so fast that it would not be able to stop before reaching the buffers. This thought only occurred to me when the engine actually passed me. As far as I can estimate, the speed of the train when it passed me was not more than three miles an hour. I saw it run into the buffer-stops. The train was stopping fast as it approached the buffer-stops. As far as I could see no steam was applied. As far as I could see the blocks were applied on all the wheels as the train passed me, but it appeared to me that the wheels were skidding. My opinion is that the accident was due to the fact of the driver not making sufficient allowance for the weight of the train he had behind him. I noted that the time at which the collision occurred was 7.59 p.m.

*Charles Rothwell*, signalman, states: I have been in the service of the Company 30½ years, during 15 of which I have been a signalman. I am now employed in Kemp Town Station signal-box, and have been there nearly 15 years. I came on duty on July 9th at 2.30 p.m. to work till 10 p.m. I came off duty at 9.50 p.m. on July 8th. I remember the 7.30 p.m. train from Brighton to Kemp Town passing my box. Lewes Road offered me this train at 7.47 p.m., and I accepted it at the same time. At 7.55 I received a train-entering-section signal for it from Lewes Road. The train arrived at my box at 7.58 p.m. I did not notice anything unusual about the speed of the train when it passed my box. I estimated the speed on passing my box at from 12 to 14 miles an hour. When it passed my box I had no idea that it would be unable to stop before reaching the buffer-stops. I noticed that steam was turned off when it passed my box; I noticed also that the brakes were applied immediately after the engine passed my box. I knew of the collision from hearing the sound of it, but I did not see the collision actually occur.

*Frank Harman*, signal porter, states: I have been two years five months in the service of the Company and have been signal porter for nearly 12 months, stationed at Lewes Road. I have been there all the time I have been in the service. I was in the signal-box at Lewes Road on the 9th of July when the 7.30 p.m. train from Brighton ran through. I did not book the time of arrival of train at my station, but it must have been about 7.53 p.m. I offered the train to Kemp Town at 7.47 p.m. and Kemp Town accepted it forthwith. The train passed my box at 7.55 p.m. I did not notice anything unusual with the train. I saw the train stop at my station and the officials of the train did not appear to have any difficulty in stopping it. At 7.57 p.m. I received from Kemp Town the signal that the train had arrived there.

*Charles Rothwell*, signalman, recalled, states: I

signalled to Lewes Road that the train had arrived at my box at 7.58 p.m. There is a clock in my box, and I took all these times from my clock.

*Harry E. Constable*, states: I am brake inspector of the London, Brighton, and South Coast Railway, to the whole of the railway, and have held that position 19 years. On Monday the 14th instant I myself examined the brakes of six vehicles of the 7.30 p.m. train. These six vehicles had been taken to the shops immediately after the accident, but no alterations had been made to their brakes until I examined them. I found the brakes to be all in good working order, and in order to make a special test of them I loaded each carriage with 50 men, and I found that with that load and the brakes fully applied the blocks were all in good contact with the wheels; in fact that with the carriages fully loaded the brakes were absolutely efficient. There is no doubt that the fact of the carriage being heavily loaded does make a slight difference as to the point of application of the brake blocks, but the difference is so small as to be practically inappreciable. It is thoroughly recognised in the service that no driver ever starts away on a journey unless he is thoroughly satisfied with the condition of his brakes, but I cannot recall any case in which a driver has so complained. I am of opinion that the brake power on the train was amply adequate to bring the train to a stand, and I think that the driver must have misjudged his distance in applying the brake. From the evidence which I have heard I do not think that the train could possibly have been approaching the station at a hand-brake speed. I have now also examined the brakes on the other five vehicles of the train, and on subjecting them to the same tests as those previously inspected, I found that their brakes are absolutely efficient.

*Robert Sims*, guard, recalled, states: Directly after the collision occurred I took the time and found that it was 7.58.

*Harry Mitchell*, driver, recalled, states: Before starting with the 7.30 train I had taken three trains from Brighton to Kemp Town and back with the same engine. The biggest load I had had before the 7.30 p.m. was six coaches, and with that load I had had no difficulty whatsoever in stopping at any point. My rule on entering Kemp Town Station is that if I have plenty of time to run round my train I stop the engine just short of the buffer-stops, but if I have not much time I stop clear of the crossing. On this occasion I was going to stop just short of the buffer-stops because I wished to have all the carriages alongside the platform. The pressure in the brake-pipe after leaving Brighton was always 50 lbs., and I had no difficulty in maintaining that pressure. I am acquainted with the rule which states that on entering terminal stations the automatic brake must not be used except in cases of emergency, but the speed of the train must be so reduced that it may be brought to a stand with certainty and at the proper place by means of the hand-brake alone. I generally adhere to this rule. On this occasion my mate applied the hand brake whilst we were still in the tunnel, and I applied the automatic brake to steady the train just as we were coming out of the tunnel. The state of the rails at the time of the accident was very greasy; they had been greasy the whole of the way from Brighton.

*Herbert Baldwin*, fireman, recalled, states: After leaving Lewes Road the first time I applied my hand brake was just after we emerged from the tunnel.

*Conclusion.*

The facts of this case are very clear. Driver Mitchell, who was in charge of the engine of the train, states that he passed the home signal, situated 332 yards from the buffer-stops, at a speed of 10 miles an hour, with steam turned off; that he applied the automatic brake when just approaching the signal-box, 280 yards from the stops, but that when he reached the end of the platform, 148 yards from the stops, he realized that he was unable to stop his train, which accordingly came into collision with the buffer-stops, at a speed which is variously estimated at from 3 to 7 miles an hour. These facts are substantiated by the other witnesses, though signalman Rothwell, who was on duty in the Kemp Town box, estimates the speed of the train when it passed his box at from 12 to 14 miles an hour.

Driver Mitchell had, before leaving Brighton with this train, taken three other trains from Brighton to Kemp Town and back on that day, with the same engine; none of those three trains, however, had had a greater load than six vehicles.

Driver Mitchell attributes his inability to stop the train to the fact of the brake power on it not being sufficient, considering the weight of the train, which consisted of eleven vehicles. He states that the brake-blocks were worn, and that before leaving Brighton at 7.40 p.m. with this train he considered that the brake power was not sufficient for such a heavy train. He admits, however, that in spite of having formed this opinion he took no steps whatsoever to report that he considered his brake power insufficient; the reasons he gives for not having done so are that there was hardly time, and that he thought that he could manage this train as he had managed the previous ones. He states that the pressure in the brake-pipe after leaving Brighton was 50 lbs., and that he had no difficulty in maintaining that pressure throughout the journey.

If driver Mitchell's statement, that before leaving Brighton with this train he realized that his brake power was insufficient, is correct, he is undoubtedly very greatly to blame for not having brought the matter to the notice of the foreman, which he admits to be the course which he himself as a rule follows in such cases. This would, undoubtedly, have been the natural step for him to have taken, and his failure to do so makes it appear very doubtful whether his statement can be relied upon.

The automatic brakes were, it appears, made use of both at London Road Station and at Lewes Road Station before reaching Kemp Town, and the latter station is just at the bottom of a falling gradient of 1 in 100. Driver Mitchell and guard Sims both state that there was a little difficulty in stopping at that station, but that it was so slight that the train did not over-run the platform at all. If, therefore, the brakes sufficed to bring the train to a stand at Lewes Road Station, at the bottom of an incline of 1 in 100, it is difficult to understand why they should not have sufficed at Kemp Town Station, where the gradient is only 1 in 213, and where there is a length of 290 yards of level before reaching the buffer-stops.

Guard Sims states that he had satisfactorily tested his brake before leaving Brighton, and that the driver had made no complaint to him on the subject. Sims had been on the three previous trains from Brighton to Kemp Town and back on that day, and no difficulty of any sort had been experienced with the brakes, which he had every reason to imagine were in first-rate order.

After the accident the brakes of all the vehicles were thoroughly examined by Mr. H. G. Constable, the brake inspector to the Company, and he states that he found them all to be absolutely efficient.

The distance between Lewes Road and Kemp Town—1 mile 14 chains—is too small for any definite conclusion to be drawn from the times recorded in the signal-boxes as to the speed of the train between those two points, but the average speed for the whole journey from Brighton to Kemp Town was not excessive.

Taking into consideration the above evidence and facts, I do not consider that there are grounds for thinking that this accident was due to any inefficiency of the brakes on the train; all the facts point to their having been in a thoroughly efficient condition. I consider that it appears probable that driver Mitchell forgot that this train was a heavier one than any of those which he had previously dealt with on that day, and that he also failed to take into account the fact that the rails were at that time more slippery than they had previously been. Owing to his not making due allowance for these two facts the train got out of his control, and he did not realize that this was the case until it was too late. The responsibility for this accident must, therefore, rest solely on him. He had been on duty seven hours at the time of the occurrence.

I have, &c.,

The Assistant Secretary,  
Railway Department, Board of Trade.

P. G. VON DONOP,  
*Lt.-Col., R.E.*

## APPENDIX.

## DAMAGE TO ROLLING STOCK.

Third-class brake No. 392.—Two headstocks, one buffer casting, one cross-bar, and two end lights broken.

Third-class carriage No. 1,132.—One headstock and two cross-bars broken.

First-class carriage No. 630.—One headstock broken.

Second-class carriage No. 413.—One headstock and one cross-bar broken.

Third-class brake No. 699.—One cross-bar and one buffer casting broken.

## DAMAGE TO PERMANENT WAY.

Buffer-stops slightly injured.

Printed Copies of the above Report were sent to the Company on the 9th September.

## LONDON, BRIGHTON, AND SOUTH COAST RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,

July 28th, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 10th July, 1902, the result of my inquiry into the circumstances under which a passenger train was derailed at about 11 a.m. on the 9th July, near West Croydon Station, on the London, Brighton, and South Coast Railway.

In this case, as the 10.30 a.m. down passenger train from London Bridge to Bognor, consisting of an engine and five vehicles, was passing the West Croydon Station signal-box on the down main line, all the vehicles of the train were derailed, with the result that the two leading ones were thrown over on their sides across the lines. The coupling between the engine and the leading vehicle broke, so the engine kept the rails and ran on into the station without sustaining any damage.

Forty-five passengers received personal injuries, some of them being serious, and at the time of my inquiry seven of these passengers were still detained in hospital.

The engine of the train was a six-wheels-coupled radial tank-engine, running chimney first; it was fitted with the Westinghouse automatic brake, working blocks on the six coupled wheels, and with a hand-brake working the same blocks.

The train consisted of the following vehicles, attached to the engine in the order given :—

				Wheels.
1 third-class carriage	...	...	...	6
1 "	...	...	...	4
1 second-class "	...	...	...	4
1 first-class "	...	...	...	6
1 brake-van	...	...	...	6

The train also was fitted with the Westinghouse automatic brake, working blocks on four wheels of each vehicle. The brakes are all reported as having been in good order.

The damage to rolling stock and permanent way is given in the Appendix.

*Description.*

West Croydon Station, near which the accident occurred, is a station on the London, Brighton, and South Coast line from Norwood Junction to Sutton; the station is provided with up and down platforms, and the main lines run through them in a direction which is approximately north and south, the down line, on which the train concerned in this accident was running, being on the east side.

The signal-box is on the west side of the line, about 120 yards to the north of the north end of the up platform.

The next signal-boxes to West Croydon in the London direction are St. James' Junction, Norwood Fork, and Norwood Junction; their distances are as follows :—

	Chains.
West Croydon to St. James' Junction	... 53
St. James' Junction to Norwood Fork	... 33
Norwood Fork to Norwood Junction	... 52

At the back of the up platform, *i.e.*, on the west side of it, there is a bay platform line, terminating at its southern extremity in buffer-stops ; it is used for both the arrival and departure of London trains, and it has, therefore, to the north of the station connections with both the up and down lines ; the latter connection, which is a facing one, is situated just opposite the south end of the signal-box, and the former connection, which is a trailing one, is about 50 yards nearer the station.

The approach to the station from the north is on a left-hand curve of  $16\frac{1}{2}$  chains radius, and the gradient is a gently falling one of 1 in 480.

At a point 180 yards north of the signal-box there is an overbridge carrying a road over the line.

The positions in which the five vehicles of the train were respectively found after the accident were as follows :—The leading vehicle was lying on its left side across the up and bay lines at a point about 30 yards north of the north end of the up platform ; it was thus derailed to the right of the down line, on which it was running, and it was lying just clear of, and nearly at right angles to, that line. The second vehicle was also overturned on its left side, and it was found lying in a slanting direction across the down line, its leading end being to the right of that line and its trailing end to the left of it. The remaining three carriages were standing upright, but each one of them had some of its wheels derailed a short distance to the right of the down line.

The first marks on the permanent way connected with this derailment were found at a point just to the north of the West Croydon signal-box, 51 feet distant from the facing connection on the down line leading to the bay line ; at this point there was a mark on the right-hand rail of a wheel having run across the top of that rail from the inside to the outside, and just opposite this point the inside of the chair supporting the left-hand rail had a corresponding mark on it of a wheel having left that rail and fallen into the four-foot way. It seems clear, therefore, that one pair of wheels was derailed at this point to the right of the line.

From this point forward, up to the facing point, wheel marks continued to show regularly on the chairs and sleepers on the right of each rail of the down line, the lines of marks gradually becoming more distant from the rails, as if the derailed wheels were gradually bearing away from them ; at the facing point itself the marks inside the left rail were about  $7\frac{1}{2}$  inches distant from that rail ; the stretcher-bar and connecting-rod of the facing point were both cut through just inside the switch-rail, and from this point forward the marks appear on the right of the rails of the bay line instead of those of the down line ; it is clear, therefore, that at the facing point the derailed wheels, instead of continuing along the down line, bore away to the right in the direction of the bay line. About 15 yards beyond the facing point the left-hand rail of the bay line was badly bent outwards, as if the derailed wheels were at that point being forced back towards the down line. Up to this point the marks on the permanent way appeared to be due to only one pair of derailed wheels, but from this point forward marks appeared both on the bay line and on the down line, so that it is clear that after passing this spot more than one pair of wheels was off the line. At the point where the left-hand rail of the bay line crossed the right-hand rail of the down line considerable damage was done, the check-rail and wing-rail being both cut through, and ahead of this point chairs were broken and sleepers marked both on the bay line and down line, and to a small extent on the up line, right up to the place where the carriages were found to have come to rest.

### *Evidence.*

*Henry Winterton*, driver, states : I have been 26 years in the service of the Company, during two or three years of which I have been passenger driver, previous to that I had been driving goods trains for about seven years. On July 9th, I came on duty at 3 a.m. to work till 12.30 p.m. I came off duty on July 8th at 2.30 p.m. On the 9th July I was in charge of the 10.30 a.m. train from London Bridge to Bognor ; my engine was a six-wheels-coupled radial tank engine travelling chimney first. It was fitted with the Westinghouse automatic brake working the blocks on the six coupled wheels, and with a hand brake working the same blocks. My automatic brake was in good order. At Norwood Fork Junction where I was stopped before arriving at West Croydon, my pressure was 75 lbs., and, as my donkey

engine was then still at work, I should have had about 80 lbs. pressure or more at the time of arriving at West Croydon. The guard and I tested the automatic brake before leaving London Bridge, and it was in good order. I was stopped three or four times before arriving at West Croydon, and in all these cases I made use of the automatic brake, and on all those occasions it acted well. I was thoroughly satisfied with the condition of my brake. I think we were a minute or so late in leaving London Bridge. The only place at which I was due to stop before reaching West Croydon was Norwood Junction. I arrived at Norwood Junction at about 10.45 which was about eight minutes late, the delay being due to my having been stopped by signal. After leaving Norwood Junction I was stopped again at Nor-

wood Fork the signal being against me. I was delayed about one minute. We left Norwood Fork, and ran through St. James' Junction without stopping, and on approaching West Croydon the signals were all off for me to run into the station. I remember passing the West Croydon signal-box. I noticed nothing unusual with the running of my train when passing the box, nor was there anything at all unusual when my engine passed the facing point almost opposite that box. We ran through the facing point quite smoothly, and at that time nothing at all seemed wrong with my train. When we were a few yards beyond the facing point, my mate called my attention to the fact that my train was rocking. I did not myself look back, but I at once applied the automatic brake. At this time steam was shut off. I had shut off steam when passing the laundry which is situated about 500 yards from the signal-box, and did not turn steam on again at all. I had not applied my brake at all up to the time that my mate told me that the train was rocking. I estimate our speed at passing the signal-box at about 15 miles an hour. When my mate thought the train was rocking, I at once tried to apply my Westinghouse brake but I found that the air was all gone. My mate had already got the hand brake applied, I then at once reversed my engine and gave her steam, the wheels however skidded, and the engine ran on into the station. At that time it had no carriages attached to it at all. I did not myself notice the vehicles behind my engine become detached. Just after my mate had called my attention to the train, the communication bell on my engine began ringing. I then went back to the train to assist. Up to the time of leaving my engine I had no idea what had been the cause of the accident. After leaving Norwood Fork my train was not checked in any way by fixed signals or hand signals.

*Ernest William Webb*, fireman, states : I have been 10 years in the service of the Company, during about three of which I have been fireman, previous to that I had been a labourer, and engine cleaner. On July 9th I came on duty with driver Winterton to work the same hours as he did, and I had been working with him the day before. I was with him on the 10.30 a.m. train from London Bridge to Bognor. Before leaving London Bridge I did not notice anything special in connection with the automatic brake. Before reaching West Croydon we stopped I think twice on the journey, and on those occasions there was no difficulty in stopping the train, the brake appeared in good order. I remember running past the signal-box at West Croydon ; at that time steam was turned off. It had been turned off when passing the laundry. No brakes were applied to the train at the time of passing the signal-box. I should estimate the speed of the train when passing the signal-box at 14 or 15 miles an hour. I noticed nothing unusual with the running of the train either when passing the signal-box or when running through the facing point. The first I noticed of anything being wrong with the train was at a point about 25 yards beyond the facing point, when at that point I turned round to apply my hand brake. I saw the train rocking about. At that time the carriage next my engine was, I think, about five feet from us, and was uncoupled from the engine. It seemed to be off the line on which my engine was running. As I looked back towards the train the leading vehicle of it was a trifle to my left. I immediately called my mate's attention to it, and I at once applied my hand brake. Immediately I had applied my hand brake I

looked back again and saw the leading vehicle take a sharp turn to my left, it seemed to sway once or twice, and then the two leading carriages fell broadside. I think my engine was about 40 or 50 yards ahead of those vehicles when they fell on their sides. I then went back to render what assistance I could. From what I saw of the derailment I could form no opinion as to what was the cause of it. Just as I spoke to my mate the inter-communication bell on the engine began ringing. We had been stopped at Norwood Fork, but the train had not been checked by signals after leaving that point.

*Alfred Molyneux*, guard, states : I have been 19 years in the service of the Company, during 15 of which I have been passenger guard. I came on duty on July 9th at 7.45 a.m., to work till 8 p.m. I had come off duty on July 8th at 8 p.m. I was guard of the 10.30 a.m. train from London Bridge to Bognor. I have frequently acted as guard to this train before. My train consisted of the following vehicles, attached to the engine in the order given :—

		Wheels.
One third class carriage	...	6
One third class carriage	...	4
One second class carriage	...	4
One first class carriage	...	6
Brake van	... ..	6

All these vehicles were fitted with the Westinghouse automatic brake, working blocks on four wheels of each vehicle. The automatic brake was in good order. I tested the automatic brake in the usual way before leaving London Bridge Station, and found everything satisfactory. I think that when we left London the pressure was about 60 lbs. I did not notice subsequently on the journey what the pressure was. We left London Bridge at 10.31, one minute late ; my first two booked stops were Norwood Junction and West Croydon. We were stopped by signals at Blue Anchor signal-box, and at Croydon up-junction, and we stopped again at Norwood Junction Station. On all those three occasions of stopping, the automatic brake was made use of, and it appeared to act well, and I was thoroughly satisfied with the condition of the brake. We left Norwood Junction at 10.54 a.m., which was seven minutes late. After leaving Norwood Junction we were stopped again at Norwood Fork signal-box, the signal being against us. We were stopped there for two minutes. We left Norwood Fork at 10.58 a.m., and we were not stopped again between there and West Croydon. I myself saw the signals between those two points, and they were all off for us. We were about to stop at West Croydon Station. I can give no information as to when steam was turned off. I noticed that the automatic brake was slightly applied when we were about 200 yards from the signal-box. It seemed to me that it checked the train a little, and that it was then released again. The automatic brake seemed to be released just before we reached the signal-box. I estimate the speed of the train between the bridge and the signal-box at about 15 miles an hour. I think 15 miles is the outside limit of the speed at which the train was travelling. As we were passing the signal-box I was looking out from my look-out window on the near side of my brake-van. The first thing I noticed, was seeing the leading vehicle of the train oscillating, and in a moment the carriage swerved to the right, turned over, and the next one did the same. I noticed that



then the automatic brake was suddenly fully applied, and I felt the blocks going on the wheels. I felt the brake going on, but I cannot say how it acted, everything happened so suddenly. I could not form any opinion as to what had caused the derailment, but I saw it was something which had happened to the leading vehicle. I cannot say when the leading vehicle became uncoupled from the engine. It was when we were passing the signal-box that I looked out, and I did so for the purpose of seeing how we were running into the platform. After the accident occurred I went and rendered all the assistance I could, and I examined the site of the derailment. The opinion I formed after viewing the site of the derailment, was that the engine had spread the rails, causing the wheels of the leading vehicle of my train to drop in between the rails. The derailment occurred just at 11 a.m. We had been due at West Croydon at 10.51 a.m., so that we were then nine minutes late.

*Walter Summerfield*, signalman, states: I have been 38 years in the service of the Company, during 36 of which I have been a signalman. I am now employed at West Croydon North Box, and I have been employed there for 18 years. I came on duty on July 9th at 6 a.m. to work till 2 p.m. I went off duty on the 8th July at 2 p.m. I remember the 10.30 a.m. train from London Bridge to Bognor passing my box. The train had been duly offered to me by St. James' Junction signal-box and duly accepted by me at 10.55 a.m. The train arrived at my box at 11.1 a.m.—all my signals were off for it. I had received no warning from the platelayers of any work going on on the line, and there was therefore nothing to prevent my accepting the train. I saw the train when it was approaching my box from the bridge. My impression is that the speed of the train when approaching my box was about 30 miles an hour. The speed did not seem to be unusually high for a train that was going to stop at the station. It appeared to me to be about the usual speed at which the trains do run in when they are going to stop. I cannot say whether steam had been shut off when the train passed my box, nor can I say whether any of the brakes were applied. The first I knew of anything being wrong with the train was hearing the noise caused by the train running over my lever rods. I knew then that something had gone wrong at the facing point. On hearing the noise I looked up and at once saw the carriages tumbling over each other. I saw nothing to enable me to form an opinion as to how the derailment had occurred. I did not see any workmen on the line near my box and I did not know that any work was going on on the line. The platelayers often do come and warn me when there is work going on on the line, but on this occasion I received no warning at all.

*Robert Gibbs*, signalman, states: I have been 41 years in the service of the Company, during 39 of which I have been a signalman. I am now employed at St. James' Junction and have been employed there for 27 years. I came on duty on July 9th at 6 a.m. to work till 2 p.m. I went off duty at 2 p.m. on the 8th July. I remember the 10.30 a.m. train from London Bridge to Bognor running past my box. I had offered this train to West Croydon at 10.53 a.m. West Croydon gave me line clear at 10.55 a.m. The train passed my box at 10.59 a.m. I did not stop the train at my box at all. The train did not pass my box at a high rate of speed as it had been stopped at

Norwood Fork, but I cannot say what the speed was when it passed my box.

*Mr. William Willox* states: I am district engineer of the Northern Division, and am in charge of West Croydon. I was on the scene of the accident half an hour after it occurred, and made a careful examination of the site. The first marks I found on the line to account for the derailment were at a point 51 feet from the facing point opposite the signal-box. At that point there was a distinct wheel mark on the right-hand rail showing that a wheel had passed on that point from the inside to the outside of the rail. There was a corresponding mark on the inside of the left-hand rail looking as if at that point a wheel had left the rail and fallen into the four-foot. From that point forward up to the facing point there were marks, first on the chairs and then on the sleepers, all these marks being on the right-hand side of the respective rails. The marks seemed to run parallel with the rail for a certain distance, and then, as they approached the facing point, they seemed to get further away from the rail. At the facing point the connecting rod and a stretcher bar were both broken. The breakage in these bars was at a point  $7\frac{1}{2}$  inches from the stock rail, and just inside the switch rail. From this point forward the wheel marks continued on the right-hand side of the rails leading to the bay line, and one of the left-hand rails of that line was badly bent. Where the bay line crosses the right-hand rail of the down road the check rail and wing rail were both broken, and the wing chairs were broken. Beyond that again there were a number of chairs broken, sleepers marked, and one rail was bent. The opinion I formed from this examination was that the derailment had occurred at a point 51 feet before reaching the facing point. On looking to ascertain the cause of the derailment I noticed that some of the chairs on the sleepers just in front of the point where the derailment appeared to have occurred had been unspiked. I noticed that six chairs under the right-hand rail had been unspiked; three of these chairs I noticed were fastened by spikes having been driven into the sleeper on the outer lip of the chair; the remaining three were not fastened at all. The first mark of derailment occurred at a point 4 feet 6 inches beyond the last of these unspiked chairs. I at once measured the gauge at the points where the chairs were unspiked, and found that the line was a full  $1\frac{1}{2}$  inches wide to gauge. The line at this point is on a curve of  $16\frac{1}{2}$  chains radius. At this point the gauge is usually made between  $\frac{1}{4}$ th and a  $\frac{1}{2}$ -inch wide to gauge. It appeared to me that the engine had spread the line making the gauge  $1\frac{1}{2}$  inches wider than it had been. I took the super-elevation at that point, and found it  $1\frac{1}{8}$  inches. This super-elevation is quite as much as I consider it should be, considering that there was a facing point just ahead of it. I ascertained that there had been a working party at work on this portion of the line. I am of opinion that the state in which the line was left was not a safe one, and that it was one that necessitated a train either travelling at reduced speed or being brought to a stop. In my opinion it was distinctly a case in which the ganger should have carried out the instructions contained in Rules 253 and 251, so that the speed of the train should either be slackened, or the train brought to a stop. In my opinion the train should have been brought to a dead stop before passing over this bit of line, and that would have been in accordance with the regular custom on our line. The ganger in charge of this work was ganger Hackett, who has been

23 years ganger of this section. He has hitherto proved himself a good reliable ganger, and I cannot myself understand why he did not take the necessary precautions. My own opinion is that the primary cause of the derailment was that the leading wheels of the leading vehicle left the rail at a point just beyond the place at which the chairs had been loosened. I consider that the state of the line may have been a contributing cause to the accident. I tried the gauge of the line at several points where ganger Hackett had not been at work, and at all these points I found the line about half an inch wide to gauge.

*Samuel Richard Hill* states: I am platform inspector on the London, Brighton, and South Coast Railway, and have been so employed for about 30 years. At the time this accident occurred I was standing on the platform at West Croydon Station, and I was watching the 10.30 a.m. train running into the station. I was standing on the down platform opposite the door of the inspector's office, I could not see the train when it passed through the bridge, but I could see it just by the signal-box. The first thing I noticed of anything having gone wrong was seeing that the coaches were jumping about. The engine appeared quite steady. The leading vehicle was somewhere near the signal-box when I first saw it jumping about. The engine appeared to run straight on down its proper road, while the vehicles appeared to turn off in the direction of the bay line, and finally the two leading vehicles were upset. I could not form any opinion as to what had been the cause of the derailment. The train was too far off from me at the time. I should roughly estimate the speed of the train when it passed the signal-box at about 15 to 20 miles an hour.

*Joseph Hackett*, ganger, states: I have been ganger for nearly 23 years, and I have been in charge of this section nearly all that time. On the 9th July I was at work on the line just opposite the West Croydon signal-box. I had found that the line at that point was a little bit out of gauge. I had found that it was about an inch wide to gauge. I usually have the line at that point a little slack to gauge, on account of its being on a curve, but on this occasion I found that it was too slack, and I made arrangements for making it up to the right gauge. In order to do this I withdrew the spikes from six of the chairs supporting the right-hand rail. I then adjusted the road to the right gauge, and drove in some spikes behind the lips of some of the chairs. I drove spikes behind the lips of three or four of the chairs. I am sure I drove in as many as three, but I am not sure whether I drove a fourth or not. This was the state of the road when the 10.30 a.m. train arrived and the accident occurred. About three quarters of an hour after the accident occurred I examined the gauge of the line again at this point and I found that the line had become a bit wider than it was when I had shoved it in. I cannot say exactly how much wide to gauge it was. I had not taken any steps before carrying out this work to warn drivers as to what was being done because on account of the short space over which I was loosening the chairs I did not think there was any call for it. I am well acquainted with Rule No. 253, and I know that when owing to repairs it is necessary for a train to travel at reduced speed, I have to take steps to warn drivers. I did not consider that there was any necessity for a train to travel over the place which I was repairing at reduced speed. I was aware that the rail which I

was loosening was an outside rail on a curve, and I knew that the outside rail of a curve is subject to great pressure when a train runs over it, but I did not see any danger whatsoever in what I was doing to the line. I distinctly gave thought to the question whether it was desirable to take any precautions, and I was distinctly of opinion that there was no necessity. I am in charge of the part of the line at which this accident happened. I always inspect this bit of line twice a day, and I had inspected it on the morning of 9th July, and it was on that occasion that I found that the short length was wide to gauge. In all other respects I thought that portion of the line was in good order. I have not been able to form any opinion as to what was the cause of the derailment. I have often done a piece of work very similar to this and left the line in the same condition for a train to run over it, as on this occasion, without having a flagman out. I cannot say whether it is customary for every ganger to act similarly. I cannot give any precise instance in which I have carried out similar work in a similar manner.

*George Harbour*, permanent way inspector, states: I have been upwards of 40 years in the service of the Company, and have been permanent way inspector for 16 years. I am in charge of what is called No. 1 District, which includes West Croydon Station. Ganger Hackett is employed under me, and is specially in charge of West Croydon. I did not know precisely what work ganger Hackett was carrying out on the morning of the 9th July, but since the accident occurred I have heard of the work he was engaged on. I understand that on account of the road not being right to gauge, he was working on it on that morning. I have heard ganger Hackett's evidence read over to me, and I understand from that the way in which he carried out his work on the morning of the 9th July. I am of opinion that, considering the state in which ganger Hackett had left the line, he ought certainly to have had a flagman out. I consider that the train should have run over this bit of line, either at a reduced speed, or that it should have been brought to a stop altogether before doing so. I am of opinion that ganger Hackett left the line in an altogether too weak condition. It is not customary on our line to leave a bit of line in a similar state to what ganger Hackett left this bit on this occasion, and if I had known that he was going to do as he did, I should certainly have taken steps to prevent it. Ganger Hackett has been serving under me for about seven years, he is an energetic man, but I have not always approved of the way in which he has carried out his work. I, at all events, think that he committed an error of judgment on this occasion. I reached the scene of the accident at 1 p.m., and, on seeing the situation, the opinion I formed was that the derailment was primarily due to the weakness of the bit of line on which ganger Hackett had been at work.

*Mr. Edwin William Trangmar*, states: I am district locomotive superintendent. After the accident occurred the engine was examined by the local foreman, and everything being found satisfactory, it was sent off to Sutton, and it continued in work for the rest of the day. As far as I know, nothing in any way has been found amiss with the engine since that time. Its brake apparatus is in perfectly good order. Immediately the leading vehicle of the train was got on to the rails after the accident, its wheels were examined, and they were all found perfectly



correct to gauge. The wheels of all the other vehicles in the train were also examined after the accident, and all were found to gauge except those of the second vehicle of the train, both axles of that vehicle were found to be bent, and the wheels to be consequently out of gauge. The wheels of all the vehicles of this train had been examined before the train left London Bridge, and no report had been received of anything being found wrong with any of them. Nothing has transpired since the accident to render it probable, in my opinion, that there was any defect in the wheels before the accident occurred. I visited the scene of the accident after it occurred. I know the point at which it appears probable that the derailment first commenced, and I know the position in which the carriages

were found after the accident. I understand that the distance between the point where the derailment first occurred, and the point where the leading carriage eventually came to rest, was 340 feet. I have heard the evidence given of several witnesses that the speed of the train was about 15 miles an hour. I cannot understand how the train travelled this distance unless it was travelling at a higher rate of speed than that given, or it may have been the train did not become uncoupled till some distance beyond this point. I have examined thoroughly the Westinghouse brake fittings on the carriages of the train, and found them in good working order. On releasing the air from the train pipe, every brake block throughout the train went securely on to the wheels and remained there.

### *Conclusion.*

From the marks on the permanent way there can be little doubt that this accident originated by one pair of wheels of the train being derailed at the point 51 feet from the facing point leading to the bay line, and from the relative positions in which the vehicles were subsequently found it appears probable that it must have been the leading pair of wheels of the first vehicle which was so derailed. These wheels, which were derailed to the right of the line, *i.e.*, to the outside of the curve on which the train was running, appear to have run along nearly parallel to the rails of the down line, but gradually bearing away to the right on account of the curve of the line, so that when they reached the facing point the left-hand wheel was on the wrong side of the left-hand switch rail and the derailed wheels consequently continued on in the direction of the bay line instead of following the down line. The weight of the engine doubtless tended to pull the leading end of the carriage back to its right line, and this will account for the left-hand rail of the bay line being found to have been so badly bent outwards. But at this point the coupling between the engine and the leading vehicle appears to have broken, and the engine ran on alone into the station. The rear of the leading vehicle would then have been pushed forward by the weight of the vehicles behind it, and as its leading wheels were at the same time being carried away to the right by the rails of the bay line, which was gradually getting further and further away from the down line, it was only to be expected that the leading vehicle should assume the position in which it was found, *viz.*, at right angles to these two lines, and that it should then overturn. The above would also fully account for the derailment of the remaining vehicles of the train and for the positions in which they were found.

The cause of this derailment is, I consider, clearly shown in the evidence given by ganger Hackett. Hackett, who is the ganger in charge of this portion of the line, states that on examining his section on the morning of the day on which this accident occurred he found that the line was for a short distance rather wider to gauge than it should have been. (The curve at this point is one of  $16\frac{1}{2}$  chains radius, and on that account the line is usually kept from one-eighth to one-fourth of an inch wide to gauge.) With the view of correcting the gauge he withdrew the spikes from six consecutive chairs under the right-hand rail, which, it will be remembered, was the outside rail of the curve; the fastenings of the inside rail he did not touch at all. He then adjusted the road to the right gauge by forcing in the right-hand rail, and drove in a spike behind the lip of some of the six chairs, so as to hold them temporarily in position pending the permanent fixing of them. Hackett is uncertain whether it was three or four of the six loosened chairs which he secured in this manner, but Mr. Willox, the District Engineer who examined the line just after the accident, is positive that only three chairs had been so secured. This was the state of the road when the train ran over it.

Hackett states that he considered that the road was in a perfectly safe condition for the train to run over, and that there was no necessity for checking the train's speed in any way; he did not therefore send out any flagmen, and he gave no warning of any sort to the signalman; the train was consequently allowed to run over the line without its speed being checked; as, however, it was approaching a station at which it was due to stop, its speed was not very high, and the estimates of it vary from 15 to 30 miles an hour.

The point previously described at which the first marks were found on both the right and left-hand rails was situated only  $4\frac{1}{2}$  feet beyond the last chair which had been loosened by ganger Hackett, so that the initial derailment of the train occurred immediately after it had passed over the rail supported by those chairs.

After the accident the gauge of the line was examined ; it was found that throughout the length on which the chairs had been loosened the line was a full inch-and-a-half wide to gauge, and it is therefore clear that under the weight of the train the line had spread throughout this portion to the extent of about an inch-and-a-quarter ; at the point where the derailment actually occurred the line was just under half-an-inch wide to gauge. There was therefore a sudden change of gauge amounting to at least an inch just before the point at which this derailment occurred, and as this change of gauge was entirely due to the outside rail there must have been a short length of that rail where its curvature was considerably sharper than that of the remainder of the curve, and a derailment at this point was very probable. The engine, with its comparatively short wheel base, appears to have been able to take this curve, but the leading vehicle, with its longer rigid wheel base, was unable to do so, and a derailment on the outside of the curve consequently resulted.

This accident must therefore, I consider, be attributed entirely to the fact that the train was allowed to run unchecked over a portion of the line which, on account of its being under repair, was in a dangerously weak condition, and for this ganger Hackett is entirely responsible.

Hackett has been in the employ of the Company for 23 years as a ganger, and it is astonishing that a man of his experience should have committed such an error of judgment as he did on this occasion. Hackett stated that he had previously allowed trains to run over lines in a similar condition, but he was unable to mention any specific instance in which he had done so. Both the District Engineer and the Foreman Platelayer under whom Hackett was employed expressed their entire disapproval of his action in the matter, and they assert that it is absolutely contrary to the custom and regulations of the Company to allow trains to run unchecked over lines in the weakened condition which obtained on this occasion. The Company will, however, doubtless take steps to ensure that their regulations on this point are in future strictly adhered to.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
*Lt.-Col., R.E.*

## APPENDIX.

### PARTICULARS OF DAMAGE TO STOCK.

Third-class carriage, six-wheeled, No. 563 (leading carriage in train, and which was overturned).—Eight quarter lights and three door lights, one step-board, four axle-boxes and three hat-racks broken ; commode handles, door handles, one buffer-rod, and step-irons bent ; two head-stocks, ends of carriage, cornice, and door-bonnets damaged ; wheels to gauge.

Third-class carriage, No. 984 (second carriage, and which was overturned), four wheels.—Two axles bent ; two headstocks, one end of carriage, three axle-boxes, one end bar, and three axle-boxes broken ; two step-boards broken, and step-irons bent ; two quarter lights broken ; one spring hanger, one axle-guard, one draw-

bar, and one buffer rod bent, and cornice damaged.

Second-class carriage, No. 372 (which maintained its upright position), four wheels.—One headstock, and one end of carriage broken ; and one side chain pulled out, and missing.

#### *Damage to Permanent Way.*

20 P. and C. chairs broken.  
43 ordinary chairs broken.  
3 steel rails broken.  
4 P. and C. rails broken.  
20 P. and C. bolts broken.  
20 fish-plate bolts broken.  
12 sleepers broken.

Printed copies of the above Report were sent to the Company on the 20th August.

## NORTH BRITISH RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
2nd October, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in accordance with the Order of the 25th August, the result of my enquiry into the cause of the collision which occurred on the 20th August about 7.53 p.m., at Hilton Junction, Perth, on the North British Railway.

In this case the 6.45 p.m. passenger train from Edinburgh to Perth collided with the rear of a special train of roundabouts which was standing at the down home signal at Hilton Junction.

The passenger train was drawn by a four-wheels-coupled tender engine, running chimney first, fitted with the Westinghouse automatic brake, actuating blocks on the four coupled and six tender wheels, and consisted of the following vehicles:—

Bogie composite 12-wheeled coach.  
Bogie composite 8-wheeled coach.  
Composite 6-wheeled coach.  
Third-class 6-wheeled coach.  
Brake van, 6-wheeled.  
Luggage van, 6-wheeled.

Out of the 44 wheels 36 were fitted with blocks actuated by the automatic brake.

The special train was composed of ten carriage trucks, nine with four wheels and one with six wheels, and a six-wheeled third-class brake van. Forty-four out of the 48 wheels were equipped with the Westinghouse automatic brake blocks.

Three passengers, all in the special train, complained of injury from cuts and bruises. One pair of wheels of the rear brake van of the special train was derailed. A list of damage to rolling stock is given in the Appendix.

#### *Description.*

Hilton Junction lies south of Perth. At this junction the double lines of the Caledonian Railway from Stirling and of the North British Railway from Dunfermline unite.

Bridge of Earn Station is situated on the North British road, about a mile and a half south of Hilton Junction. It is with the down (eastern) line between these two points that we are immediately concerned. Bridge of Earn Junction signal cabin, where the double lines from Ladybank and Dunfermline unite, is placed about 350 yards south of the northern extremities of the station platforms, and the down home signals adjoin the cabin.

The down starting signal is at the north end of the down platform, and the approximate distances, measured from this signal post to various points on the line northwards, are as follows:—

	Yards.
Down advance starting signal, Bridge of Earn	258
Down distant signal, Hilton Junction	1,720
Bridge over River Earn	1,825
Point of collision	2,327
Down home signal, Hilton Junction	2,463
Signal cabin, Hilton Junction...	2,525

There is a road bridge over the railway just north of the station platforms, which is referred to in the evidence.

The lines through Bridge of Earn Station, and for a distance of about 750 yards north, are straight. The road then curves (radius of curve, 40 chains) to the right for about 700 yards. A second length of 560 yards of straight road follows, and is succeeded by a second curve (radius, 30 chains) to the right, which continues up to Hilton Junction.

Between Bridge of Earn Station and the river bridge the gradient rises at an inclination of 1 in 1,009; from this point to Hilton Junction the gradient rises more sharply, in the ratio of 1 in 314.

The railway is in low cutting for the first 600 yards north of the station, and is then carried on an embankment. The country is open, and the view of the signals, apart from the curvature of the line, is excellent.

### *Evidence.*

*John Kemp*, signalman, states: I have about 12 years' service with the Caledonian Railway, and about nine and a half years as signalman. My hours of duty on the 20th August were from 2 p.m. till 10 p.m. The special train of roundabouts was offered to me by Bridge of Earn at 7.17 p.m. I did not accept it. It was offered again at 7.26 p.m. and I accepted it under the warning signal "section clear but junction blocked." It entered my section at 7.29 p.m. and arrived at my down home signal at 7.32 p.m., where it came to a stand as the signal was at danger. I received a bell signal—three pause four—about 7.49 p.m. to indicate a train was waiting at Bridge of Earn. I knew the train was the 6.45 p.m. express passenger from Edinburgh. I acknowledged the signal by one bell on the ringing key. I received no other signals from Bridge of Earn. I did not clear back for the special roundabout train which was still standing at my down home signal. The 6.55 p.m. up (North British) goods train Perth to Ladybank left my section at 7.40 p.m. and was cleared back at 7.44 p.m. by Bridge of Earn. The 7.30 p.m. (North British) passenger train Perth to Glasgow passed my box at 7.45 p.m. and was cleared by Bridge of Earn at 7.49 p.m. Three up trains and two down trains passed my box on the Caledonian line between 7.30 p.m. and 8.4 p.m. All these trains were in my opinion of more importance than the special roundabout train, and for this reason I kept it waiting. The first information I had of the accident was given me by one of my mates who lives close to the signal box. He called to me and I went to the door of the box. He pointed in the direction of the roundabout train, and I saw the down express approaching about an engine's length from the rear of the roundabout train. I saw that steam was shut off at that moment, and then the collision occurred. I went to the speaking instrument and called up Bridge of Earn, and asked the signalman why he had allowed this train to go away. He said "Which train." I replied "The fast train." He said "I did not know it was away." I told him it had pitched into the roundabout train. There is tablet single line working between my box (Hilton Junction) and Friarton Cabin at the north end of Moncrieff Tunnel, owing to work which is going on in the tunnel. Trains passing my box would generally therefore not exceed a speed of 10 miles an hour in order to take up the tablet. It was still good daylight at 7.50 p.m., and only some of the fast trains that passed my box had their tail lamps lighted. I do not know when these lights have to be lit.

*John Coull*, signalman, states: I have 29 years' service with the North British Railway, and have been signalman for 27 years, 18 years at Bridge of Earn. My hours of duty on the 20th August were from 6 p.m. till 6 a.m. I offered the special roundabout train to Hilton Junction at 7.17 p.m. It was not accepted. I offered it again at 7.25 p.m. and it was accepted under the "caution signal." I pulled off my home signal to let the train up to the platform. When the driver whistled I pulled off the starting and advance starting signals, and the train left the station. I did not receive the clearance signal for this train from Hilton Junction. I belled the "train waiting" signal for the 6.45 p.m. passenger train to Hilton Junction at

7.49 p.m. The signal was acknowledged by one bell. At this moment the 6.45 p.m. express was passing Balmanno Box. I had accepted it at 7.44 p.m. I got the "entering section" signal for this train at 7.49. The train approached my box with the home signal against it. The train had almost come to a dead stand when I pulled off the home signal. As the train was entering the platform I pulled off the starting signal. I saw the train go by the starting signal and expected it to come to a stand at the advance signal. I saw the three tail lights on the express, but I do not think they were lit. The three lights on the roundabout train were also not lit. It was a fine clear evening with good light. I put the starting signal to danger behind the express, but did not look at the express after doing this as I was engaged with the speaking instrument. The express passed my box at 7.51 p.m., and I cleared back for it to Balmanno at the same time. About 7.53 p.m. I was rung up by the signalman at Hilton Junction. He asked me why I had let up the train. I asked him "What train." He said "The passenger train." I said "I had not let it up." He asked me then "if she had come through the signals." I said "Yes." He said that she had pitched into the roundabout train. The signal lamps were all alight before I came on duty. I can see the top arm of the advance starting signal from my cabin. I could see both arm and light at this time. The red light was showing when I put the signal to danger behind the roundabout train. I sent the "train entering section" signal for the roundabout train at 7.29 p.m. The 6.55 p.m. up goods train was offered to me by Hilton Junction at 7.35 p.m. and I accepted it at once. The 7.15 p.m. up passenger train was offered to me at 7.25 p.m. and was accepted at once. I received the train entering section signal for this last train at 7.29 p.m. I am quite certain I put the down advance starting signal to danger behind the roundabout train and saw both lights go from green to red. My son was with me in the signal cabin between 7 and 8 p.m. He brought my tea for me about 7.15 p.m. and was still in the cabin at 7.54 p.m., when I sent him to the stationmaster to call him, so that I might inform him of the accident. He was sitting in the cabin whilst he was with me, but in no way interfered with my work. In accordance with the rules I ought to have sent him away.

*Mr. Drummond Wanless* offers his evidence, and states: I was standing on the road overbridge at the north end of Bridge of Earn station about 7.50 p.m. on the 20th August. I saw a passenger train approaching the station from the south. It was moving very slowly as it approached the home signal near the cabin. I saw the semaphore arm of the signal drop and also the starting signal arm at the same time. The train approached the bridge slowly and passed under it at a speed of about 8 miles an hour. I then turned round and looked north and saw the advance signal at danger. I knew that the train should come to a stand at this signal, and thinking that there might be some soldiers in the train returning from South Africa I thought that I would go to the signal where the train would be standing, to greet them, so I walked quickly down the approach road, but had only gone a

distance of about 30 yards when I saw the train go past the signal. The signal was not pulled off, and I am quite positive that the train passed it when it was in the danger position.

*James Ingram Morrison*, stationmaster at Bridge of Earn, states: I was between the branch line and the sidings when I saw the 6.45 p.m. down passenger train approach the cabin. I saw the home signal was at danger and it dropped just as the train slowed up to it. I saw the driver apply steam immediately the signal came off, and I stood and watched the train passing me and saw the starting signal drop about the time the train reached the south end of the platform. I cannot say in what position the advance starting signal was at this time as I did not look to see. When the train reached the home signal it was going so slow one might have jumped on to the foot plate. The signalman's boy came over and told me, so far as I could understand him, that something was wrong. I went over to the cabin, and the signalman Coull told me that the 6.45 p.m. had run into White's roundabout train, and that it had passed the advance starting signal at danger, and that he did not know the train had left the signal until the signalman at Hilton Junction had called him up and asked him why he had allowed the train to go on. It was about 8 p.m. when I was at the cabin. Coull has been with me for about 20 years and I have had no occasion to complain of his conduct. I know his son, who is an imbecile, was in the habit of bringing over his father's supper, but did not know he stayed any length of time in the cabin. The boy is a quiet boy and quite unlikely to interfere with the instruments or levers in the box.

*Alexander Allison*, driver, states: I have about 27 years' service with the Company, and have been a driver for 21 years. I came on duty on 20th August at 8.35 a.m., and was due off duty at 7.52 p.m. I was driving the 6.45 p.m. passenger train, Edinburgh to Perth, on that day. My engine was No. 732, a four-wheels-coupled tender engine, chimney leading. It was fitted with the Westinghouse automatic brake, working blocks on the four driving and six tender wheels. The brake was in good working order. When I approached the distant signal for Bridge of Earn it was standing at danger. I had shut off steam two or three miles before reaching the distant signal. I applied the brake before reaching this signal. The home signal was also at danger as I approached it, and I had almost brought my train to a standstill when I saw the signal come off. At that moment I should have passed the overbridge south of the signal cabin. I released the brake to allow the train to run forward to the starting signal which I saw was then at danger. When I reached the south end of the platform I saw the starting signal drop. Before entering the station I could also see the advance starting signal which was at that time at danger. About midway through the station I saw the lower arm of the advance starting signal drop, almost immediately after the starting signal had fallen. I could see both signal lights and semaphore arms. I applied steam at this moment, about midway through the platform, and the engine was in steam passing both the starting and advance starting signals. I had passed the advance before I could see the distant signal for Hilton Junction. This signal was at danger when I first caught sight of it. I had shut off steam before passing this distant signal, when our speed would be about 20 miles an hour. I ran some distance past the signal before applying the brake. I was, I consider,

complying with Rule No. 36—to reduce speed at a distant signal at danger—by shutting off steam. At the speed we were running I could have brought the train to a standstill in about two trains' lengths. I was driving from the left hand side of the engine. My brake was not applied when we passed over the river bridge. I saw nothing of the train in front of me until I was within about 50 yards of it, and my brakes were not then applied. I at once applied the brake to the full extent, but it was too late to avoid a collision. My speed might have been from 10 to 15 miles an hour when I first caught sight of the rear of the standing train. I never dreamt that a train would be standing at the home signal, and had sufficient confidence in the brake power to know that I could bring the train to a standstill before reaching the home signal. I am quite certain I saw the advance signal come off to safety before I passed it. No train passed us on the up line after we had passed through the station. I saw the home signal at Hilton Junction about the same time as I caught sight of the train standing in front of me. It stood at danger. I saw the guard of the roundabout train jump out of his van just as my engine was about to strike it. I saw no one in the permanent way signalling to me.

*Peter McRae*, fireman, states: I have 10 years' service, and have been a fireman for six and a half years. My hours of duty on 20th August were the same as driver Allison's. Whilst passing through Bridge of Earn Station I was looking straight ahead. I saw the starting signal drop when we were at the south end of the platform. The advance starting signal was at safety when we were passing under the bridge north of the station. The distant signal for Hilton Junction was at danger when I first saw it, and I then whistled twice for it. Shortly after this, steam was shut off. The driver applied the brake gently just outside the distant signal. We passed the distant signal at a speed of from 25 to 30 miles an hour. Shortly after passing the distant signal I saw a train standing ahead of us, but thought it was on the Caledonian main line. I did not speak of it to the driver. I again noticed the train, and then thought it was shunted on to the up line, and so did not draw the attention of the driver to it. My mate was the first to notice the train was standing in front of us on the down line, and I felt the brake applied.

*John Cameron*, passenger guard, states: I have over 35 years' service with the Company. My hours of duty on the 20th August were from 8.35 a.m. till 7.52 p.m. I was guard of the 6.45 p.m. train, Edinburgh to Perth, on the day in question. The train was made up of the following vehicles in the order named:—

- 1 composite bogie 12-wheeled coach.
- 1 composite bogie 8-wheeled coach.
- 1 composite 6-wheeled coach.
- 1 third-class 6-wheeled coach.
- 1 brake van 6-wheeled.
- 1 luggage van 6-wheeled.

Out of 44 wheels on the train 36 were fitted with brake blocks. The Westinghouse brake was in working order. At Dunfermline I saw there was 60 lbs. pressure. I travelled in the fifth vehicle from the engine. I saw the starting signal at Bridge of Earn was "off" as we drew up to it. I did not see the advance starting signal, as I had to look to some dogs in the van who got entangled with a bicycle, and therefore cannot say how it stood. I saw the distant signal for Hilton Junction standing at danger, but did not

see the train standing in front of us, as I was looking out on the left hand side of the van. I had no knowledge that anything was there until the collision took place. The brake was applied immediately before the collision occurred. No passengers in my train complained of injury, and no wheels were derailed.

*David Ramsey*, goods guard, states: I have about 49 years' service with the Company, and was the guard of the roundabout train on the 20th August. My hours of duty were from 9 a.m. till 7 p.m. The roundabout special train ran from St Andrew's to Perth at no particular booked time. The train was made up of 10 carriage trucks—nine with four wheels and one with six wheels, and a six-wheeled third-class brake van. It was equipped with the Westinghouse automatic brake with blocks on 44 wheels out of 48. The train came to a stand at the home signal for Hilton Junction, and was standing there about 21 minutes before the accident occurred. The continuous brake was in action to prevent the train running back. Passenger trains have the continuous brake applied at this place. I was watching the home signal from the right-hand window when I

heard the noise of a train behind me. Looking back I saw a train on the down line approaching us when the train was on the Bridge of Earn side of the junction distant signal. I saw the train pass the junction distant signal, but as it was not steaming I thought it must have seen us. I waited to see if it was going to stop, and when it was about 200 yards distant I jumped out of the van and went back to meet it. I did not get further than 15 yards. I waved my red flag and shouted as well. The collision took place, and a pair of wheels of my brake van were thrown off the rails. There were 10 adults and two or three children in the third brake. Three men complained of injuries from cuts and shock. I should say that the speed of the passenger train as it passed me was about 15 miles an hour. The reason why I did not get out of my van sooner was because I was expecting every moment that my train would receive the home signal and start. When the passenger engine passed me I am certain that the brake was not applied. I do not think that either the driver or fireman saw me, as I stood in the four-foot way of the up line. They were both over on the left-hand side of the engine.

### *Conclusion.*

The evidence in this case as regards the position of the advance starting signal (Bridge of Earn Junction) when the passenger train passed it is conflicting. Driver Allison and fireman McRae state that it was at safety. On the other hand, signalman Coull and a disinterested observer, Mr. Drummond Wanless, affirm that it stood at danger.

Putting aside this question for the moment, it will be well to examine driver Allison's actions, as set forth in his statement, after he had passed the advance starting signal.

He admits that he saw the distant signal (Hilton Junction) was at danger as he approached it, and he states that he shut off steam before passing it. By so doing he contends that he was complying sufficiently with Rule 36, which is to the effect that speed must be reduced when an engine driver finds a distant signal at danger, and that the train must proceed cautiously towards the home signal, being prepared to stop if necessary. His speed at the distant signal is stated by himself to have been 20 miles, and by his fireman 25 to 30 miles an hour.

About 100 yards in advance of the distant signal is the bridge over the River Earn. It was probably from this point that McRae first saw the roundabout train standing on the line in front of him, and it is difficult to understand why he did not recognise its position, or at all events call his driver's attention to it. The rear vehicle of the roundabout train would then be at a distance of about 500 yards. From an examination I myself made of the line I think that a driver would have no difficulty from this bridge in seeing and recognising the position of a train placed as the special train of roundabouts was. Allison failed to see it, and permitted his train to run on, still without any application of the brake. He is confident that, at any moment after passing the distant signal, he could have brought his train to a standstill in two trains' lengths. The length of the passenger train, from information supplied me by the locomotive superintendent, was 104 yards. If therefore he had seen the train in front of him at a distance of 200 yards only, he could have stopped his train in time to avoid a collision.

He got within 50 yards of it without seeing it, with his brakes still unapplied. It will be noted that guard Ramsey of the roundabout train states that the passenger engine passed him at a spot 15 yards from his train, and he is positive that the brake was not acting. Ramsey's statement that the speed of the passenger train was about 15 miles an hour agrees fairly with Allison's own estimate.

Allison caught sight of the standing train, and, apparently for the first time, of the home signal (Hilton Junction) simultaneously. The latter was then from 155 to 190 yards distant according to the two statements, but it was the immediate proximity of the roundabout train which seems to have impelled him to use his brakes for the first time. The home signal is actually visible before the distant signal is reached.

A consideration of these various points leaves me with a strong impression that driver Allison after passing the advance starting signal was not using the caution

inculcated in the rule referred to, and was not paying sufficient attention to his work. He allowed himself to be taken by surprise by the appearance on the line of an obstruction which it was quite possible for him to have seen early enough to have avoided a collision.

I am not disposed therefore to give full credit to his statement, and that of McRae, that the advance starting signal was at safety when they passed it. I prefer to believe the account given by signalman Coull substantiated as it is by the evidence of Mr. Drummond Wanless. The statement of this gentleman is of a thoroughly convincing character, and to my mind proves conclusively that the signal was not at safety, but at danger.

I come to the conclusion that driver Allison is responsible for this accident in that he passed the advance starting signal (Bridge of Earn Junction) when it was at danger, and having so passed it failed through inattention to avoid a collision when it was in his power to do so.

Fireman McRae must be held responsible in a minor degree.

Both these men had been on duty about 11 hours and 20 minutes at the time of the occurrence.

I consider that guard Ramsey of the train of roundabouts showed a lack of judgment in not taking earlier action to protect the rear of his train, since he admits he saw the passenger train before it passed the distant signal some 600 to 700 yards away, when it was therefore in the same section as his train.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

#### APPENDIX.

##### PARTICULARS OF DAMAGE TO PLANT.

North British Carriage Truck, No. 140.—One buffer casting broken.

North British Carriage Truck, No. 144.—One side chain broken.

North British Carriage Truck, No. 169.—One cross bar broken.

North British Carriage Truck, No. 158.—Two cross bars broken.

North British Carriage Truck, No. 139.—One cross bar broken, and buffer spindle bent.

North British Carriage Truck, No. 156.—Two axle boxes broken.

North British Carriage Truck, No. 55.—One axle box broken.

North British Carriage Truck, No. 183.—Two cross bars broken.

North British Carriage Truck, No. 96.—Headstock, one cross bar, one axle box, and buffer casting broken.

North British Carriage Truck, No. 57.—Two cross bars and two axle boxes broken, and Westinghouse hose pipe destroyed.

North British Brake Third, No. 1,141.—Headstock, end panelling, and guard plate badly damaged, and trailing wheels knocked under vehicle.

North British Engine, No. 732.—Air pipe and three lamp holders broken, smoke box front bent, and smoke-box door stove in.

Printed copies of the above Report were sent to the Company on the 21st November.

#### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
5th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 1st September, the result of my enquiry into the cause of the accident which occurred on the 30th August, about 8.55 a.m., at Charing Cross Station, Glasgow, on the North British Railway.

In this case the 7.55 a.m. passenger train from Helensburgh was entering the station, when it came into collision with the 8.5 a.m. passenger train from Kilsyth, which was standing at the up platform.

The Kilsyth train was composed of a four-wheels-coupled, trailing bogie, tank engine, running chimney first, and thirteen four-wheeled vehicles. The Helensburgh train was



horsed by a four-wheels-coupled, leading bogie, tender engine, chimney in front, and consisted of seven six-wheeled coaches and a four-wheeled brake van. Both trains were fitted throughout with the Westinghouse continuous automatic brake, which in each case was in good order.

Thirty-six passengers at the time were found to have received injuries. These were in many cases very severe. All of these passengers were travelling in the Kilsyth train, and most of them were occupants of the last two carriages, which were practically wrecked.

The continuous brake on the standing train had, fortunately, been released before the collision occurred, otherwise the results would have been still more serious.

A list of damage to rolling stock is given in the Appendix. In the case of the Helensburgh train, the engine alone suffered trifling injury.

### *Description.*

Charing Cross Station, the scene of this accident, is between Finnieston and Queen Street (Low Level) Stations, Glasgow.

The railway is double between these points, and between Finnieston and Charing Cross has a general south-west and north-east direction.

Both the trains concerned travelled on the up line from Finnieston to Charing Cross. A distance of about 950 yards separates the two signal cabins, which are in each case situated about the middle of the station. The lines are in tunnel for a length of 742 yards, practically from the north-east end of the former station to the south-west end of the latter.

After leaving Finnieston Station, the line ascends through the tunnel to the centre of Charing Cross Station at an inclination of 1 in 200. The line is straight to within about 40 yards of the north-eastern mouth of the tunnel, at which point a curve to the right, with a radius of 19 chains, commences, and is carried through Charing Cross Station.

Measured from Charing Cross Station signal cabin, in a south-westerly direction, the approximate distances to the undermentioned points are as follows :—

	Yards.
Point of collision ... ..	83
Mouth of tunnel ... ..	101
Up home signal (Charing Cross Station) ... ..	106
Up distant signal (Charing Cross Station)... ..	618
Up starting signal (Finnieston Station) ... ..	858

There is ordinary block working between Finnieston and Charing Cross Stations. Up trains are not permitted to leave Finnieston Station until the previous train has cleared Charing Cross Station.

Between Charing Cross Station and Queen Street (Low Level) West signal cabin the Company has in force, as an additional security to block working, Sykes' electrical "lock and block" system. The fatal collision which occurred in March, 1900, in the tunnel between Charing Cross Station and Queen Street (Low Level) Station was due to a breach of the regulations for working the Sykes' electrical locking apparatus.

### *Evidence.*

*David Swan*, driver, states: I have 28 years' service with the Company as driver. My hours of duty on the 30th August were from 5.50 a.m. till 4 p.m. I was driving the 8.5 a.m. ordinary passenger up train from Kilsyth to Bridgeton Cross on that day. My engine was No. 94, a four-wheels-coupled, trailing bogie, tank engine, and was running chimney first. It was fitted with the Westinghouse and hand brakes, actuating blocks on the four driving wheels. The brakes were in good working order. We were running about a minute late to time. I had no difficulty in seeing the distant and home signals for Charing Cross Station as I approached the station. But there are occasions when owing to hazy atmosphere and heavy smoke there is a difficulty in seeing

these signals in Finnieston tunnel, more especially the distant signal. The up starting signal at Charing Cross was at danger when I approached it, and I stood at the signal about a minute, which is our usual time. The collision then occurred. I had previously released the power brake, and was waiting for the fixed signal and the guard's signal to start. The collision threw us forward about an engine's length. I and my fireman were thrown backward by the blow, but were not injured. No derailment of my engine resulted. Some minutes after the collision, the starting signal was pulled, and I looked back to see if anyone was giving me a hand signal. Our usual rate of speed at the west end of Charing Cross Station is about 12 miles an hour, and at this speed I



could on an emergency bring the train to a stand in about half its own length. There was nothing to complain of in the condition of the rails on the morning in question. I saw driver Richardson about a quarter of an hour after the accident. He told me that he had a clear road, and only saw our train a short distance before striking it. The atmosphere in the tunnel varies considerably. I have sometimes seen a train in the station at Charing Cross whilst I have been standing at Finnieston platform. Tail lights are always lit on these trains. There was an interval of about 20 minutes between the moment the starting signal came off after the accident, and the time I left Charing Cross Station for Queen Street.

*Samuel Hamilton*, fireman, states: I have eight years' service, and have been a fireman for nearly seven years. I was with driver Swan on the 30th August, and had the same hours of duty. On that day the atmosphere in the tunnel was pretty thick. It was, however, a better morning than that of the 6th September. I was on the six foot-side of the engine, and did not see either of the signals in Finnieston Tunnel. The starting signal at Charing Cross was at danger as we drew up to it. It came "off" about two minutes after the collision occurred. My driver got off the engine after the accident, but I was on the foot-plate the whole time, and until we left the station the starting signal remained in the safety position.

*William Purnell*, passenger guard, states: I have about 11 years' service and have been a passenger guard about three years. My hours of duty on 30th August were from 6.50 a.m. until 3.11 p.m. I was guard of the 8.5 a.m. up passenger train from Kilsyth to Bridgeton Cross. The train was composed of 13 vehicles, all four-wheeled, in the order given:—

- 1 Dummy van.
- 1 Third-class brake.
- 4 Third-class coaches.
- 2 First-class coaches.
- 4 Third-class coaches.
- 1 Third-class brake.

All wheels were fitted with blocks actuated by the Westinghouse continuous brake. Before leaving Kilsyth I tested the brake and found it to be in good working order. I rode in the rear brake van. I have been many times through Finnieston Tunnel. I did not see the signals in the tunnel on the morning in question, though I looked out for them. The atmosphere on the morning of 30th August was much the same I should say as it was on the morning of 6th September. A train on the down line passed us in the tunnel. After coming to a stand at Charing Cross Station, I got out of my brake van, and was walking up the platform, when I met a signal fitter who asked me if I had any fog signals in my van. I said there were, and went back with him and got them out. I did not then know what he wanted them for. As I was in the van, he said, "Hurry up, the train's here." I had scarcely time to get out of the van before the collision occurred. I did not see the position of the starting signal before the accident. I saw the signal, however, about 10 minutes before we left Charing Cross, and it was then standing at "Clear." It may have been pulled "Off" before I saw it. I had no time at all to warn the passengers of the impending collision with a view to getting them out of the carriages. I did not see the position of the home signal after the accident. The last two vehicles of my train were broken up entirely by the blow. I helped to get

the injured passengers out of my train, there were numbers of them injured. As soon as they were all out, I attended to the couplings, some of which had been broken by the accident, and received instructions to take the 11 coaches in front to Bridgeton Cross. I caught sight of the engine of the Helensburgh train before the collision, but cannot speak as to its speed. We had been standing at the station only about a minute before the collision took place. There was smoke and steam issuing from the mouth of the tunnel as I ran back with the signal fitter to the brake van.

*George Stevenson*, station master, states: I am the station master at Charing Cross, and have been there five and a half years. At the time the accident occurred I was on the down platform near the bookstall. The morning of 30th August was dull, but still it was clearer than it was the morning of the 6th September. I saw the Kilsyth train draw up to the up platform. A down train left shortly before it arrived, and the two trains must have passed each other in the tunnel. The first intimation I had of something being wrong, was the rumbling noise of the Helensburgh train as it emerged from the tunnel. I pulled out my whistle and blew it as hard as I could, and held up my hands and also shouted. I did not notice the fireman of the Helensburgh train. The mouth of the tunnel was full of smoke before the Helensburgh train emerged. It was so thick that even if I had been on the look out for it I could not have seen the train sooner than I did. I had so short a view that I cannot speak as to the speed of the train. I spoke to signalman Fisher on the down platform after the accident, and asked him how the accident occurred. He said he had cleared back the Kilsyth train to Finnieston instead of offering it on to Queen Street. He said he could not explain why he did so. The down line was fouled with wreckage after the collision, and several of the passengers had been thrown on to the down rails, so that my first endeavours were devoted to blocking the down line, as I saw the down starting signal was standing at "clear." This I succeeded in doing, and then I went to the assistance of the injured passengers, and telephoned for ambulances and despatched messengers for doctors. The doctors arrived within five minutes after the occurrence. There were about 20 passengers taken to the Infirmary, and others were despatched to their homes in cabs. Signalman Fisher has been about one-and-a-half years with me at Charing Cross. He bears an excellent character. I have never had to complain of any irregularity on his part. I did not speak to him in the morning before the collision. He was cool and collected after the collision. I know him to be a thoroughly sober man.

*John Fisher*, signalman, states: I have been about seven years in the service of the Company, and have been a signalman about six years. I have been at Charing Cross Station for 18 months. My hours of duty on 30th August were from 7.30 a.m. till 3.30 p.m. The 8.30 a.m. up train from Clydebank was offered by me to Queen Street West at 8.50 a.m., and was accepted at the same time. I gave the "train entering section" signal for this train also at 8.50 a.m. The 8.5 a.m. up train from Kilsyth was offered to me by Finnieston at 8.51 a.m. At this time my up starting, home, and distant signals were all at danger. I accepted the Kilsyth train at 8.51 a.m., and pulled off the up home signal for the train, but kept the up distant signal at danger, as the Clydebank train had not been cleared back by

Queen Street West. This Clydebank train was cleared back at 8.53 a.m. I accepted a down train, and entered the time in my train book at 8.51 a.m., and at the same time received the "entering section" signal for it. It was a non-stopping train, and ran through Charing Cross about 8.52 a.m. or 8.53 a.m. I offered this down train to, and it was accepted by, Finnieston at 8.52 a.m. As soon as the Kilsyth train arrived at the up platform I cleared back for it to Finnieston about 8.53 a.m., I think, but I have not got this time entered in my book. I should have offered the Kilsyth train to Queen Street West instead of clearing it back to Finnieston. The up Helensburgh train was offered me by Finnieston immediately after I cleared back for the Kilsyth train, and I accepted it. These times are also not booked. Immediately I had so accepted the Helensburgh train I recognized the mistake I had made. I accordingly rang up Finnieston on the telephone, and told the signalman that the Kilsyth train was at the platform and that he must stop the Helensburgh train. He replied that it had gone away and was in the tunnel. I offered the Kilsyth train to Queen Street West, but it was not at once accepted, so I called up the signalman at Queen Street West and tried to tell him what had happened. There was a signal fitter working at the frame in my cabin, and I asked him to go to the mouth of the tunnel and try and stop the Helensburgh train. I had no time to do anything more before the collision occurred. I cannot say for certain what was the position of the up home signal when the Helensburgh train passed it. I was engaged in trying to correct my mistake and may have forgotten to put the up home signal to danger behind the Kilsyth train, which was only entering the station when I cleared back for it by mistake, and immediately accepted the next train. I had not drawn the up distant signal that morning, and am certain that it stood at danger. My mistake was in using the instrument to Finnieston for clearing back the down train instead of using the instrument to Queen Street. I had not forgotten the position of the Kilsyth train at the platform. The clearance of the Kilsyth and acceptance of the Helensburgh trains were practically simultaneous. The down train referred to, which I accepted at 8.51 a.m., may have stopped at Charing Cross Station. I understand now that it did so stop. I have for two or three months been attending the Western Infirmary for an enlarged spleen, and have been advised to take a holiday, or if possible to get an exchange to a quieter position on the coast. I applied two months ago for an exchange, and set forth my reasons, namely, medical advice. I received an acknowledgment of my letter, and recognise that in the course of time I should probably have got my exchange. I was an in-patient for eight weeks at the Infirmary about 18 months ago, and have been suffering from the same trouble since that time. An exchange was offered to me to Lochmill, but the work was heavy and so I refused it.

*John Low*, traffic inspector, states : On receiving information from the station master at Charing Cross that signalman Fisher wished for an exchange, I offered him Lochmill siding and asked him to go out and see it. This would be about three weeks ago. He came in a day or two afterwards and told me the place would not suit him, and that he was under new medical treatment and would rather remain where he was.

*John Davidson*, traffic inspector, states : I arrived at Charing Cross station about 9.20 a.m.

on the 30th August. Just as I arrived the last injured passenger was being removed. I searched the damaged vehicles (the two last on the train) and also the front portion of the train, and satisfied myself that all the injured had been removed. I then instructed the guard of the Kilsyth train to take the front portion on to Bridgeton Cross, and shouted out to Fisher to let the train away. Fisher was then in the signal cabin. I had previously looked in the direction of the up starting signal and seen that it stood at danger. I then came back to the rear of the train and met Mr. Cunningham, district superintendent, who was talking to the driver of the Helensburgh train. Mr. Cunningham told me that the up home signal was "off," and I went into the tunnel and assured myself that it was in that position. By this time the front part of the Kilsyth train had left the station, and I went into the signal cabin and found all the up line signal levers back in the frame. I then discovered that the debris of the broken carriages had fouled the wires of both the up distant and up home signals, which were for this reason standing at "clear." After the debris was removed the signals were tested and found to be in working order. I was present when signalman Fisher came into the inspector's room at Queen Street, and heard him tell Inspector Low that he would prefer remaining where he was, as he had been under treatment by another doctor and was feeling much better. I understood that his meaning was that he had changed his mind and no longer wanted an exchange.

*Edward Sirrie*, signalman, states : I have 11 years' service, nine years as signalman. My hours of duty on 30th August in Finnieston cabin were from 5 a.m. till 1 p.m. The 8.5 a.m. up train from Kilsyth was offered by me to Charing Cross and accepted at once. The 8.25 a.m. special down train from Bridgeton Cross was offered by Charing Cross at 8.51 a.m. I received the entering section signal for this down train at 8.54 a.m. I received the clearance signal for the 8.5 a.m. up train at 8.54 a.m. I offered the 7.55 a.m. up train from Helensburgh to Charing Cross at 8.54 a.m. and it was immediately accepted. There would be no appreciable interval of time between my acknowledging the clearance signal for the Kilsyth train and my offering the Helensburgh train. This train at the moment it was accepted had not arrived at Finnieston Station. I pulled off my up starting and distant signals on receipt of the acceptance, my up home was already standing "clear." The Helensburgh train entered and passed Finnieston Station at 8.55 a.m., as it was a non-stopping train. I was just about to send the "entering section" signal for the train to Charing Cross, when I was called up on the telephone by the signalman at Charing Cross, and asked to stop the Helensburgh train, as the Kilsyth train had not left the station. I told him the train was past me, the brake van was at the moment just going out of sight. If I had received the obstruction signal from Charing Cross, instead of having been called to the telephone, I think it is possible I might have checked the driver of the Helensburgh train or possibly attracted the attention of the guard of the train.

*Donald Fraser*, relief signalman, states : I have nine years' service and seven years as signalman. My hours of duty on the 30th August were from 5 a.m. till 7.30 a.m., and from 8 a.m. till 10.30 a.m., and from 1 p.m. till 3.30 p.m. I was at Queen Street West on the 30th August between 8 a.m. and 10.30 a.m. The 8.25 a.m. down special was offered by me to Charing Cross at 8.50 a.m. and accepted at once. The 8.30 a.m. up Clydebank

train was offered to me by Charing Cross at 8.50 a.m. The 8.5 a.m. up train from Kilsyth was not offered to me by Charing Cross. I cleared back to Charing Cross for the Clydebank train at 8.52 a.m. The 8.25 a.m. down special was not cleared back from Charing Cross until 9.27 a.m.

*Robert Richardson*, driver, states: I have 18 years' service and have driven for about nine years. My hours of duty on 30th August were from 7 a.m. till 5 p.m. I was driving the 7.55 a.m. up train from Helensburgh to Bridgeton Cross on the day of the accident. My engine was No. 345, a four-wheels-coupled, with leading bogie, tender engine, chimney in front. It was fitted with the Westinghouse brake actuating blocks on the four coupled and six tender wheels, and with a hand brake also on the tender wheels. I understand the weight of the engine and tender to be about 75 tons. The automatic brake was in good working order. I stopped at all the stations between Helensburgh and Glasgow, except Finnieston, and used the brake at all stations. The morning was hazy and still. I was checked by the outer distant signal for Finnieston being at danger as I passed it. There is an inner distant signal which came off when I was about 20 yards from it. I turned on a little steam then until we were about midway through Finnieston Station when I shut it off. I shut off steam as I had enough speed on to take me through the tunnel. My speed then would be from 15 to 20 miles an hour. The starting signal at Finnieston was standing clear when I first caught sight of it. I did not see the distant signal for Charing Cross, which is in the Finnieston tunnel, owing to the thick smoke and steam. I did not apply the brake as I thought my speed was sufficiently low without it. I know that a signal not visible has to be taken as a danger signal. I proceeded through the tunnel without applying steam and saw the home signal when I was about five or six yards from it. It was showing a green light, and my speed passing it would be about 10 miles an hour. At this moment I caught sight of the outline of the brake van of the train in front of me. I was holding the brake handle at the time and immediately jammed it down hard to its full extent. I then tried to reverse the engine and was moving the lever when we struck the train. I think I remember feeling the brake act before we actually struck. I scarcely felt any shock from the collision, and we ran forward about an engine length after striking.

*Robert White*, fireman, states: I have five years' service, four years as a fireman. I was with driver Richardson on the 30th August, and my hours of duty were the same as his. I was on the six-foot side of the engine. Our speed entering Finnieston tunnel would be about 10 miles an hour. Steam was not then applied, and my driver did not apply steam running

through the tunnel. I did not see the position of the home and distant signals for Charing Cross. I was whistling to indicate our route just as we came out of the tunnel, and did not see the rear of the train in front of us. Just as I had whistled the driver applied the brake and reversed the engine.

*James Somerville*, passenger guard, states: I have 37 years' service and have been guard for 36 years. My hours of duty on 30th August were from 7.55 a.m. till 5.20 p.m. I was guard of the 7.55 a.m. up passenger train from Helensburgh to Bridgeton Cross. My train was composed of eight vehicles in the order mentioned:—

- 1 third-class coach six-wheeled.
- 2 first-class coaches six-wheeled.
- 4 third-class coaches six-wheeled.
- 1 brake van, four-wheeled.

I tested the brake at Helensburgh before starting, and found it working satisfactorily. The gauge indicated 75 lbs. pressure. There were brake blocks on 32 out of a total number of 46 wheels in the train. The morning in question was hazy and inclined to fog. I did not see the position of the distant signal for Charing Cross as I passed it. After the collision I got out of my van and began walking to the front of the train next to the tunnel wall. I got as far as the mouth of the tunnel, but cannot say how the home signal stood. Immediately I discovered what had occurred I hurried back to the rear and got out some detonators and my lamp from the van, and went back to protect the rear of my train. I received no complaints from any of the passengers in my train.

*Alfred Wagstaff*, signal fitter, states: I was working under the signal cabin at Charing Cross Station between 8 a.m. and 9 a.m. on 30th August. Signalman Fisher asked me to try and stop the Helensburgh train in the tunnel. I ran out and asked the guard of the train standing in the station for fog signals. By the time he got them out of his brake van it was no use, as the Helensburgh train was close up. I called to him to jump out sharp. I went to assist the injured and cannot say in what position the home signal was standing.

*William Bell*, signalling inspector, states: I was at Charing Cross Station about 9.30 a.m. I went straight to the signal cabin, and found all the levers back in the frame. Then I went to the home signal and found it "off." On coming back I found the up home and distant signal wires twisted round a broken guard rod. After a time the rod were removed, and the home signal at once went into the danger position. After all the debris were moved I tested the up home and distant signals and found them to be in working order and not requiring any adjustment.

### Conclusion.

The sequence of events which led to this accident appears to have been as follows:— At 8.51 a.m., Fisher, signalman at Charing Cross, accepted the 8.5 a.m. up train (ex. Kilsyth). This train would appear to have arrived at the station about 8.54 a.m. Shortly before it arrived a down train left Charing Cross Station after having been duly accepted by Sirrie, signalman at Finnieston. Fisher sent the "Train entering section" signal for this down train to Finnieston, and then instead of sending the "Line clear" signal for the same train to Queen Street (West) signal cabin he sent the "Line clear" signal to Finnieston.

The 7.55 a.m. up train (from Helensburgh) was then offered to Fisher by Finnieston, and he made his second mistake and accepted it. At this moment Sirrie states the Helensburgh train had not entered Finnieston Station. Assuming an average speed for this train

of 15 miles an hour, about two-and-a-quarter minutes would be required to traverse the 1,000 yards which probably separated it from Charing Cross Station. There is evidence to the effect that the Kilsyth train had been standing at Charing Cross for about a minute only, "the usual time," before the collision occurred. There is further evidence to show that the Helensburgh train was passing out of Finnieston Station when Fisher found out he had made a mistake and attempted to rectify it by using the telephone to Finnieston. I think, therefore, it is probable that it was the arrival of the Kilsyth train at Charing Cross Station which actually drew Fisher's attention to his mistake.

Fisher admits that in a moment of forgetfulness he used the wrong line instrument for clearing the down train, and then gave permission for the Helensburgh train to enter the section already occupied by the Kilsyth train. These mistakes were the cause of the collision, and signalman Fisher must bear the full responsibility. He had been on duty for one-and-a-half hours when the accident occurred. The statement of the station master that he bears an excellent character may be set to his credit, as also may be the fact that he gave his evidence in a very straightforward manner. I do not gather that Fisher was actually unfit for duty on the day of the accident.

At the same time it is clear that after discovering his mistakes he did not act in a clear-headed manner. His first action should have been to send the "Obstruction" signal to Finnieston, instead of adopting the more lengthy means of communication by telephone. There is further some doubt as to whether the home signal was left in the safety position by Fisher or actually pulled off from danger to safety by wreckage after the collision. Judging from Fisher's statement and actions, I am inclined to accept the evidence of driver Richardson that the signal was showing a green light when he passed it.

It is difficult also to understand why, as the clearance signal from Queen Street (West) for the previous up train was received by Fisher at 8.53 a.m., he did not attempt to explain matters to the driver of the Kilsyth train and get him to draw his train ahead. Another course would have been to take steps to make the passengers in the rear carriages of the Kilsyth train get out on to the platform.

I do not consider that driver Richardson acted with the caution prescribed by Rules Nos. 74 and 36, considering the fact that the line was in tunnel and, by his own account, full of smoke. He admits that he passed the up distant signal in the tunnel without seeing it and that he should therefore have treated it as a danger signal. He does not appear to have reduced his speed through the tunnel so as to be prepared to stop at the home signal if he found it at danger. If he had done so the effects of the collision would have been minimised. It would be well for the Company to impress upon their drivers that distant signals on these lines are not to be disregarded. The frequency of the traffic and the number of tunnels necessitate more than the ordinary caution.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, etc.,  
J. W. PRINGLE,  
Major, R.E.

#### APPENDIX.

##### PARTICULARS OF DAMAGE TO PLANT.

Brake Third, No. 1.—One end, one end quarter, one quarter, four step boards, one headstock, two diagonals, two longitudinals, one cross-bar, and one buffer spring destroyed; four guard plates and four buffer rods damaged; one partition destroyed; six brake end glasses broken; one door destroyed; one drawbar damaged; one carriage side destroyed; brake end badly damaged; four axle boxes broken, and bearing springs damaged.

Third, No. 463.—Total wreck.

Third, No. 496.—One headstock destroyed and one buffer casting broken.

First, No. 315.—Two body glasses broken; one screw coupling destroyed and one buffer casting broken, and minus eight seat cushions.

First, No. 303.—Two buffer castings and one coupling broken; minus one link; three corner plates and one headstock damaged.

Third, No. 567.—One headstock damaged; one headstock destroyed and two buffer castings broken.

Third, No. 111.—One drawbar coupling damaged.

Third, No. 625.—One buffer casting broken and one headstock destroyed.

Third, No. 583.—One drawbar link bent; one buffer casting broken and one headstock damaged.

Third, No. 486.—One large body glass broken; one headstock damaged; one headstock destroyed and one step board damaged.

Luggage Van, No. 50.—Three oil boxes broken.

Third, No. 709.—One coupling, one body glass, and air brake cylinder cover broken.

Third, No. 426.—One headstock damaged.

Engine, No. 345.—Brake pipe damaged.

## NORTH-EASTERN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
20th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with the Order of the 6th September, the result of my enquiry into the circumstances under which a collision occurred between a passenger train and a train of empty cattle waggons at about 11.15 a.m. on the 27th August near Forth Junction, Newcastle, on the North-Eastern Railway.

In this case, as the 10.33 a.m. up passenger train from Blackhill to Newcastle, consisting of an engine and eight vehicles, was running through a facing point near the Forth Goods Junction, the engine and train took the wrong road and ran along the connection leading to the up goods line, coming into collision with the waggons of an empty cattle train which was standing on that line.

The engine of the passenger train was derailed, and was considerably damaged. None of the vehicles of the train, however, left the rails, though four of them were slightly damaged. Five passengers have complained of personal injuries received, but it is believed that none of them are of a very serious nature.

Four of the empty vehicles of the cattle train were totally destroyed and eight more were slightly damaged.

The engine of the passenger train was a four-wheels-coupled side tank engine, running chimney first; it was fitted with the Westinghouse automatic brake working blocks on the four coupled wheels, and with a hand brake working the same blocks.

The train consisted of the following vehicles, attached to the engine in the order given:—

	Wheels.
1 brake third ... ..	6
2 third-class carriages ... ..	6
1 first-class carriage ... ..	6
3 third-class carriages ... ..	6
1 brake third ... ..	6

All these vehicles were fitted with the Westinghouse automatic brake working blocks on four wheels of each carriage.

The brakes are all reported as having been in good order.

The cattle train, which was standing on the up goods line, consisted of an engine, 31 empty waggons, and a guard's van.

Particulars of the damage done to rolling stock and permanent way are given in the Appendix.

*Description.*

Forth Goods Junction, where this accident occurred, is on the Newcastle-Carlisle branch of the North-Eastern Railway, and it is situated about half a mile west of Newcastle Station.

The up and down main lines run through this junction in a direction which is almost exactly east and west, the up line being on the northern side.

The signal-box is situated on the north side of the main lines and close to them. At a short distance east of the box is a double junction connecting the main lines with a pair of up and down goods lines, which run parallel to the main lines and on the south side of them. The connection leading from the up main line to the up goods line is a facing one for up main line trains, and the facing point is situated exactly 176 yards to the eastward of the signal-box; a few yards in rear of it are the splitting signals for the two roads. It is with this facing point that this accident is mainly concerned.

The facing point is provided with a bar, and also with wedges, of the type usually employed on the North-Eastern Railway, which, when inserted, lock the points securely in whichever direction they are lying. The bar and wedges are worked together by a separate lever from that working the points.

The usual interlocking is provided in the signal-box, between the levers working the points, wedges, and signals respectively, in order to ensure that neither signal can be lowered unless the point lever is in the right position for that signal, and unless the wedge lever is in the position indicating that the wedges are inserted.

It should be noted, however, that there is no detecting arrangement between the points themselves and the signals, such as is now usually provided at all facing points, to ensure that neither signal can be pulled off until the road is lying right for the line to which each signal refers.

The rodding connecting the points and the wedges with their respective levers in the signal-box consists of quarter-inch channel iron, supported at intervals varying from 8 ft. to 10 ft. apart. The rodding when originally laid down, in 1894, weighed  $9\frac{1}{2}$  lbs. per yard, and its weight now is 9 lbs. per yard.

In consequence of there being some sidings situated on the north side of the line, this rodding does not run straight from the box to the points, and there are consequently five cranks, three rocking shafts, and a compensator fixed between the levers and the points and wedges worked by them.

The points at the facing end of the connection were not damaged in any way by the accident, but at the trailing end two of the stretcher bars were bent, and the tab holding the third one was broken, this damage being precisely what might have been caused by the points having been run through when they were lying in the wrong direction.

### *Evidence.*

*John Harkness*, driver, states: I have been about 22 years in the service of the Company, during ten of which I have been a driver. On the 27th of August I was in charge of the engine of the 10.33 a.m. train from Blackhill to Newcastle. I came on duty at 3.55 a.m. to work to 2.5 p.m. I came off duty on the 26th at 2.5 p.m. My engine was a four-wheel-coupled side tank engine running chimney first fitted with a Westinghouse automatic brake working blocks on the four coupled wheels, and with a hand brake working the same blocks. My brake was in good order. I remember approaching the Forth Goods Junction signal cabin. The distant signal for the main line was off for me when I passed it. At that time I was running between 30 and 40 miles an hour. The home signal opposite the cabin was also off for me, and I ran past it. On the facing point east of the signal cabin there were splitting signals. The left hand one which applies to the main line is the one which I wanted. This signal was off for me also, and I ran past it. My speed was still between 30 and 40 miles an hour. At the facing points my train took the wrong line and ran along the connection leading to the up goods line. I at once noticed that we had taken the wrong line and I at once shut the steam off and applied the brake fully. It checked the speed of my train a good deal, but not sufficient to prevent it running into the cattle trucks which were standing on the up goods line. I think that our speed must have been about 20 miles an hour when we struck the cattle trucks. The result of the collision was that my engine was derailed, but none of my train was derailed. Neither the fireman nor I were seriously hurt. My brakes appeared to act well. When I looked back after the collision the main line signal had been put to danger. We ran quite smoothly through the facing points.

*Richard William Walker*, fireman, states: I have been in the service of the Company about eight years, during nearly four of which I have been a fireman. I was acting as fireman on the 10.33 a.m. train from Blackhill on the 27th of August. I was working the same hours as driver Harkness on that day and on the previous day. I remember approaching Forth Goods Junction signal-box. All the signals for the main road were off for us. I believe that we were going about 30 miles an hour at the time. On reaching the facing points on the east of the signal cabin I noticed that our engine took the line to the

right leading to the goods line. There are splitting signals just before reaching this point, and I noticed that the main line signal was off for us. I at once applied the hand brake, and my mate at once applied the Westinghouse brake, and at the same time he shut the steam off. At the time we struck we had slacked off speed a little.

*Richard Mulcaster*, guard, states: I have been between nine and ten years in the service of the Company, during about one year of which I have been a passenger guard. I was guard to the 10.33 a.m. train from Blackhill to Newcastle on the 27th of August. I came on duty on that day at 5 a.m. to work till 3 p.m. I came off duty on the 26th at 2 p.m. My train consisted of eight vehicles attached to the engine in the order given, viz.:—

	wheels.
1 brake third... ..	6
2 third-class carriages .. ..	6
1 first-class carriage ... ..	6
3 third-class carriages ... ..	6
1 brake third ... ..	6

All these vehicles were fitted with the Westinghouse automatic brake working blocks on four wheels of each carriage. The brake was in good order. The first I knew of the accident was feeling my train brought to a stand. Just previous to noticing that my train came to a stand I saw that the automatic brake was fully applied, and seeing the brake applied I was prepared for the shock, and so did not feel it much. Just before the accident occurred, I had seen the splitting signals at the facing points, and I saw that the main line signal was off for us. I was looking out of my window at the time. Four vehicles of my train were damaged, but none of them were derailed. I at once ran forward to see that the down train from Newcastle was stopped. When my train came to a stand my brake van was standing on the points. Immediately after the accident occurred I did not notice the position in which the points were lying, but after I had gone forward to see about the down train I came back and looked at the points, and saw that they were lying for the goods line, and I noticed that the wedge was not fully home, but about half-an-inch of it was holding the points in position. I estimate our speed in passing the signal-box at between 30 and 40 miles an hour. The brake seemed to act well when it was applied.

*George Logie*, signalman, states: I have been 29 years in the service of the Company, during



the whole of which I have been a signalman. I am stationed in the Forth Goods Junction box and have been there about 29 years. I came on duty on the 27th at 6 a.m. to work till 2 p.m. I came off duty at 2 p.m. on the 26th. I remember the passenger train from Blackhill approaching my box. I know the facing point to the east of the cabin where there is a connection from the up main to the up goods. At 11.6 a.m. an up mineral train had passed my box and had ran across the connection leading to the up goods line. The next train which ran through those points was the train to which the accident occurred. After the mineral train had run through the connection I at once set the line right for the main line. This would have been just about 11.10. The first thing I did was to put the signal No. 6 back to danger. After the train was clear of the points I pulled over the lever working the wedges. It came off all right without any difficulty. I then pushed back the lever moving the points so as to restore them from the main line. This lever also came over quite easily. I then put back the lever working the wedges. This also went quite easily. My mate then shifted the clearance bars. I thought that the line was then set correctly for the up main line. The 10.33 a.m. train was offered to me from Elswick Works cabin at 11.13 a.m. I accepted it at the same time. I received the "Train entering section" signal at 11.15 a.m. I gave "Train out of section" for the train at 11.16 a.m. At 11.13 a.m. when I accepted the train I pulled off all my signals for it. My assistant pulled the signals off, but I saw them come over, and they all came over easily. I was not looking along the line at the time the train took the wrong road, but I did so immediately afterwards. I at once took steps to stop the traffic in both directions. The train was at that time standing over both the points. I have had no trouble previously with these points nor since the accident. Ever since the accident the points have been working quite easily and correctly. At the time the train ran through No. 4 signal for the up main line was pulled off. The levers working these points and wedges did not always work alike, but sometimes work very easily. Sometimes I have known them work rather hard. I have no idea of the speed of the train when it passed my box, but I think that the speed was rather slower than some trains do run past. After the mineral train had gone past a light engine had come out of the goods yard on to the down goods independent. It then ran along through 48 points to the up goods line. This was at 11.12 a.m. Following this engine a cattle train came out of the goods yard on to the down goods independent, and that train also ran through 48 points on to the up goods line and came to a stand across 48 and the end of 52 points. This was at 11.13 a.m. When the cattle train ran through 48 points the lever working 52 points was back in the frame. Some months ago we had a little trouble with the wedge at this point sticking, but not for the last few months. They were repaired by a man named Henderson. It was my assistant that put No. 6 to danger after the mineral train had passed. I am positive that I did not shift the points until the mineral train was quite clear of the further end of them, nor did I try to get the wedge lever out until the train was quite clear of the points. The moment the accident occurred my assistant put No. 4 signal to danger. At that time No. 3 and No. 1 had both been placed at danger.

*George Hunter*, relief signalman, states: I have been 28½ years in the service of the Company,

during 27 of which I have been employed on signalling. At the time of the accident I was employed as a relief signalman in the Forth Goods Junction signal-box. I came on duty at 6 a.m. to work till 2 p.m., and had come off duty at 2 p.m. on the 26th. I remember a mineral train running past my box at about 11 o'clock. It went on into the up goods line. After the mineral train had run through the connection from the main line to the goods line, signalman Logie altered the points and set them right for the main line. I altered the bars. Logie did not appear to have the slightest difficulty with the levers. After this a light engine came out of the goods yard and ran through No. 48 points to the up goods line, and immediately afterwards an empty cattle train did the same, and the cattle train came to a stand across 48 and 52 points. I remember the Blackhill train being offered to my box. I accepted it myself at 11.13 a.m., and I pulled off all the main line signals for it. They came quite easily. The train passed my box at the usual speed of from 30 to 35 miles an hour. I did not actually see it take the wrong road but I saw it immediately afterwards. At the time I saw it No. 4 signal was off. Immediately we saw what had happened No. 4 signal was put back to danger. I am quite certain that when Logie put back No. 52 points that the rear of the mineral train was clear of the clearance bar No. 26. At the time the mineral train ran across No. 52 points No. 25 lever was pulled and No. 26 lever was in its normal position.

*Thomas Ridley*, permanent way inspector, states: I am in charge of the section from Scotswood to Sunderland, including the point at which this accident occurred. I was travelling in the 10.33 a.m. train from Blackhill. As soon as the accident occurred I assisted some passengers out of the train, and I then went to the rear of the train and examined the points at which the accident had occurred. I found that the points were lying for the up goods road and the wedge was about an inch and a half or an inch in. I could not see that there was anything to hold the wedge in that position. At that time the rear van was standing with its rear wheels just on the heel of the points. These points had been renewed on the 6th of July, the previous ones having been worn out. The points, wedges, and bar had all been renewed, but not the rodding, and since they were put in I have had no trouble with them. As soon as the train was brought off 52 points I examined the further end of them. I found that the tab holding one of the stretcher bars was broken, and the two other stretcher bars were bent. This is just the sort of breakage which is caused by an engine running through the points in the wrong direction. When I examined the trailing end of 52 they were half open, i.e., they lay half way between the two positions. When I examined the facing point the bar seemed to be quite free. My attention has never been called by any of the men to any fault in connection with these points.

*John Peter Henderson* states: I am a blacksmith in the employ of the North-Eastern Railway Company, and have been in their employ about eight years and a half. I am employed at the Central Station, Newcastle. I know the points to the east of Forth Goods Junction signal cabin where the accident occurred on the 27th of August. They are facing points. These points were renewed on July 6th, and since that date I have never carried out any repairs to them. Previous to that date I had carried out some repairs. About three months before these points were renewed the

signalman complained that they did not work well. They sent for me and I went down to repair them. I found that at the facing point the switch was not coming over close against one side. The switches came over quite right when the line was lying in one direction, but not when it was lying in the other. I cannot remember for which direction it came over properly. There seemed to be more pressure on one side than there was on the other. I adjusted the adjusting screw and made this all right, and there was no trouble subsequently. The wedges seemed to work all right, and I had no complaint in regard to them. I made no alteration to the rodding between the signal cabin and the points. Owing to the switch not being properly home on one side the wedge would not go home.

*William Wood*, driver, states:—I have been 26 years in the service of the Company, during 10 of which I have been a driver. On the 27th of August, shortly after 11 a.m., I was driving a light engine. I brought it from the goods yard near the Forth Goods Junction box, and took it along the up goods line. I know the connection leading from the up main line to the up goods at the east of that signal-box. In running along the up goods I ran past the trailing end of that connection. When I passed the end of these points I did not notice whether they were set right for me or not. I think that if the points had been laying in the wrong direction and I burst them I would have felt it, but I cannot say for certain. I noticed nothing whatsoever unusual when I passed these points.

*Edward Pendrich*, signal inspector, states: I am signal inspector on No. 1 section, extending from Heaton to Delaval West. About 1.20 p.m.

on the 27th of August I visited the site of the accident. Previous to this I had been on the spot about 11 a.m. and inspected the points and the interlocking frame. I had found all correct, and received no complaints of anything being wrong. After the accident I found that my men were on the spot, and I found out from them what they had done. I found that at the trailing end some of the stretcher bars were broken, and at the facing end the points were disconnected. I made a thorough examination of the rodding between the signal cabin and the points. The rodding is of channel iron. I think it is five-sixteenths of an inch in thickness. The joints are made with fish plates, and are supported on roller sheaves. They are generally at 8 feet intervals apart, though some may be a few inches more. I found the rodding to be in proper working order. None of the joints were loose. There are five cranks, one compensator, and three shafts between the facing points and the signal cabin. All the connections were in good order. The cranks were all in proper working order. There was no looseness whatever at the cranks. I consider that the fact of the point lever being brought over when the points were held must have been due to undue pressure. The rod must have had a certain amount of spring in it. The points are 176 yards from the cabin; about half of this is push and the remainder pull. I could find nothing to account for the wedge sticking. After the train was clear the stretcher bars were repaired and both points were connected up again. No alteration whatever had been made in the rodding between the signal cabin and the points. After they were connected up again they appeared to work perfectly well, and there has been no trouble with them since.

### *Conclusion.*

The accident was caused in a manner which is most unusual at the present day.

When the 10.33 a.m. up passenger train from Blackhill to Newcastle approached Forth goods junction the distant and home main line signals were off for it, and it accordingly ran past the signal-box at a speed of between thirty and forty miles an hour. All witnesses agree that at the facing point east of the signal-box the signal was off for the train to run on towards Newcastle on the up main line, but in spite of this fact the whole train took the road leading to the up goods line, and consequently came into collision with an empty cattle train which was standing on that line. Driver Harkness, who was in charge of the engine of the passenger train, at once noticed on passing the facing point that his engine had taken the wrong road, and he immediately took all possible steps to check the speed of the train; his promptness undoubtedly prevented the collision from having far more serious results than was actually the case. The train came to rest with its rear brake van standing on the main line across the facing points, and most of its vehicles on the connection leading to the up goods line; it was thus standing right across the track of the main down line trains, but fortunately no down train was passing at that moment, and the signalman succeeded in blocking the line before any started from Newcastle.

Immediately after the train was brought to rest the positions of the facing points and of the wedges were examined; it was found that the points were lying for the up goods line, and that the wedges, though not fully inserted, were sufficiently home to hold the points securely in the position in which they were lying. There can be no doubt, therefore, that at the moment that the train reached this facing point, though the signal was off for the main line, the points were lying for the up goods. The train accordingly ran through the connection leading to the up goods line, and as there was a train already standing on that line, the collision occurred.

Subsequent to the accident experiments were carried out at the facing point to ascertain how it was possible for the above described contradiction between the points and signals to have occurred.



The points were set for the up goods line, and the wedge lever was partially pulled so as not to withdraw the wedges entirely, but to leave them as nearly as possible in the exact position in which they were found after the accident; the wedges were then mechanically secured in that position, so that it should not be possible for them to be moved in either direction.

It was then found that it was possible: firstly, to complete the movement of the wedge lever, though the wedges themselves were not free to move; secondly, by exerting a little undue pressure to pull over the point lever to its full extent, though the points, which were securely held by the wedges, could not move at all; and, finally, to restore the wedge lever to its normal position, *i.e.*, to go through the necessary movement for completely inserting the wedges, though the latter were still unable to move. These lever movements having been carried out, the point and wedge levers were then both in their right positions to allow the main line signal lever being pulled over, thereby lowering that signal. It appeared, therefore, that assuming that something had occurred to have prevented the wedges being completely withdrawn, there was still sufficient play or spring on the rodding to allow all the lever movements in the signal-box to be carried out which were necessary to release the lever lowering the main line signal.

A few minutes previous to the arrival of the up passenger train a mineral train had been passed across this connection from the up main to the up goods line, and it was only five minutes before the arrival of the up passenger train that the signalman had pulled over the necessary levers to set the road for the main line.

It seems therefore probable that when, after the mineral train had passed across this connection, the wedge lever was pulled over to withdraw the wedges, the latter for some reason were not fully withdrawn, but that they stuck before they were clear of the points. It was then, as shown by the above described experiment, possible to go through all the necessary operations for setting the points and lowering the signal for the main line though the points were still set for the up goods line; and there appears to be no doubt that it was in this manner that the accident was caused.

It is difficult to satisfactorily explain the sticking of the wedges; they were carefully examined, but nothing could be found to account for it, and though no alteration was made to them they were found after the accident to be working quite satisfactorily. It is possible that the sticking may have been caused by an attempt on the part of the signalman to withdraw the wedges before the vehicles of the mineral train were clear of the locking bar, but there is no evidence to support this theory.

It should be noted, however, that subsequently to the levers having been pulled over with the view of setting the road for the main line a light engine and a portion of the cattle train had run along the up goods line past the trailing end of the connection between it and the up main line. If, as was clearly the case, the points of this connection had not moved in response to the lever movements, these points must at that time have been lying in the wrong direction for those trains and must have been burst by them. The damage done to the trailing points shows clearly that this was the case. Though this damage to the trailing points cannot have been the cause of the wedges sticking in the first instance when they were withdrawn, it may have been the cause of their failure to move when the attempt was made to insert them after the point lever had been pulled.

But though it is difficult to precisely explain the reason for the failure of the wedges, it must be pointed out that this failure would not have resulted in an accident had there not been two further defects in the arrangements. Firstly, the rodding connecting the levers in the signal-box with the points and wedges failed in that it allowed the levers to be completely pulled over even though the point and wedges were not free to respond to their movements; and, secondly, there was no detecting arrangement provided between the points and the signals to prevent either signal being lowered unless the points were lying right for that signal.

As regards the failure of the rodding, this may have been caused either by looseness at the cranks or by the rodding itself possessing too much spring. The cranks were examined after the accident and they did not appear to be unduly loose, but, with the number of cranks and rocking shafts which intervened between the levers and the points, it was inevitable that there should be a certain amount of looseness between these two points. The rodding appeared to be in fairly good order, but the distance apart of the supports was unusually large. 8 feet is generally regarded as the maximum distance apart of rodding supports, and in some specifications the distance is not allowed to exceed 6 feet; but in this instance there were eighteen cases in which the intervals exceeded 9 feet, and in three of these cases it was over 10 feet. These intervals are sufficiently large to allow of the possibility of the rodding being able to buckle between the points of support,

and this buckling might admit of the point lever being pulled over even though the points were not free to move with it.

It was probably a combination of the two above mentioned causes which led to the failure of the rodding, and a re-arrangement of the rodding at this point is clearly desirable.

The possibility of a failure of the point rodding, such as occurred on this occasion, has long been recognized, and it is on that account that the provision of a detecting arrangement at all facing points between the points and signals is now made a requirement. This arrangement ensures that even though the lever working the signal be pulled over, the signal itself will not respond to it unless the points are lying right for the line to which that signal refers.

The North-Eastern Railway Company are in the habit of providing a detecting arrangement of this description at their facing points, and it is difficult to understand why this had not been done at this point, especially as the situation is one in which the provision is especially desirable.

I consider that it was the absence of this customary safeguard which should be regarded as the main cause of this accident. Since the accident occurred detectors have been provided at this facing point, but, if there are any other facing points on the Company's system at which they are not so provided, steps should certainly be taken at all such points to remedy the omission forthwith.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
Lieut.-Col., R.E.

#### APPENDIX.

##### *Damage to Engine.*

Engine, No. 2,097.—Buffer beam broken up; smoke box badly damaged; chimney knocked off; leading wheels, springs, and hangers broken; eccentric rods broken; one connecting rod bent.

##### *Damage to Carriages.*

Third-class brake, No. 1,828, North-Eastern.—One side ducket broken off; two luggage compartment doors damaged; three door windows broken; one quarter light broken; two foot boards damaged; two door hinges broken; two side panels broken; one axle box broken.

Third-class, No. 2,154, North-Eastern.—One foot board broken; three door panels broken; three door handles broken; three commode handles broken; two door windows broken; one quarter light broken; one corner pillar and one end sheath broken.

First-class, No. 1,893, North-Eastern.—One foot board broken; three door hinges broken; four door handles and four commode handles broken; two door windows broken; one end sheath broken.

Third-class, No. 1,026, North-Eastern.—One door handle broken off.

##### *Damage to Wagons.*

Cattle, No. 11,837, North-Eastern.—Totally destroyed.

Cattle, No. 10,110, North-Eastern.—Totally destroyed.

Cattle, No. 28,202, North-Eastern.—Totally destroyed.

Cattle, No. 4,211, North-Eastern.—Totally destroyed.

Cattle, No. 62,019, North-Eastern.—End broken.

Cattle, No. 28,166, North-Eastern.—Buffer nozzle blocks broken.

Cattle, No. 4,287, North-Eastern.—Buffer nozzle blocks broken.

Cattle, No. 4,177, North-Eastern.—Roof damaged.

Cattle, No. 28,250, North-Eastern.—End broken.

Cattle, No. 12,823, North-Eastern.—End broken.

Cattle, No. 3,990, North-Eastern.—Wheels displaced, and axle boxes and brake work broken.

Cattle, No. 3,842, North-Eastern.—End broken and wheels displaced.

##### *Damage to Permanent Way.*

14 sleepers destroyed; 28 chairs broken; one rail broken; one switch bar broken; one pair of point rod and bar broken.

Printed copies of the above Report were sent to the Company on the 13th October.

#### NORTH EASTERN RAILWAY.

Board of Trade (Railway Department),  
8, Richmond Terrace, Whitehall, London, S.W.,  
7th October, 1902.

SIR,

I HAVE the honour to report for the information of the Board of Trade, in compliance with the Order of the 10th of September, the result of my enquiry into the circumstances under which a collision occurred between two passenger trains at about

4.40 p.m. on the 5th of September, at Harrogate Station, on the North Eastern Railway.

In this case, as the 12.20 p.m. up passenger train from Edinburgh to London, consisting of an engine, tender, and seven vehicles, was entering Harrogate Station on the up main line, it came into collision with the rear end of a relief train, consisting of an engine, tender, and five vehicles, which was standing in the station on the same line.

The speed of the 12.20 p.m. train at the time of the collision was small, and very little damage was done to rolling stock, but thirty-eight complaints have been received by the Company from passengers reporting personal injuries sustained, though it is understood that none of these were of a very serious nature. Most of the injured passengers were travelling in the relief train.

The engine of the 12.20 p.m. train was a four-wheels-coupled bogie tender engine, running chimney first; it was fitted with the Westinghouse automatic brake, working blocks on the four coupled wheels and on the tender wheels, and with a hand brake working the blocks on the tender wheels.

The train consisted of the following vehicles attached to the engine in the order given :—

				Wheels.
1 brake third	...	...	...	12
2 composites	...	...	...	12
1 third-class dining car	...	...	...	8
1 first-class dining car	...	...	...	8
1 composite	...	...	...	12
1 brake third	...	...	...	12

The train also was fitted with the Westinghouse automatic brake working blocks on all the wheels of the train.

The relief train consisted of an engine, tender, and the following vehicles :—

				Wheels.
1 brake third	...	...	...	8
2 composites	...	...	...	8
1 third-class	...	...	...	8
1 carriage brake	...	...	...	8

This train also was fitted with the automatic brake, working blocks on all wheels of the vehicles.

All the brakes are reported as having been in good working order.

The damage to permanent way was nil; that to rolling stock, which was entirely confined to the relief train, is given in the Appendix.

### *Description.*

Harrogate Station is provided with separate up and down platforms, and the up and down main lines run between them in directions which are almost exactly north and south, the up main line being on the eastern side of the station.

It is with the up main line alone that this accident is concerned.

The platforms are 250 yards in length, and at each end of the station there are signal boxes, known as the north and south signal boxes, respectively. The north box is situated on the west side of the line at a point about 135 yards to the north of the north end of the platform. The exact position of the south box is immaterial.

The up line is provided with distant, outer home, and inner home signals, all of which are worked from the north box, and under the inner home signal is a calling-on arm, similarly worked.

The collision occurred at a point 82 yards south of the north end of the up platform, and the following distances from the point of collision are noted :—

					Yards.
To the north end of the up platform	...	...	...	...	82
To the north signal box	...	...	...	...	215
To the inner home signal and calling-on arm...	...	...	...	...	290
To the outer home signal	...	...	...	...	426
To the distant signal	...	...	...	...	729

The next signal box to the Harrogate north box is the Dragon Junction box, distant 1,414 yards from it. The gradient for an up train approaching Harrogate Station

is a rising one of 1 in 66 the whole way from the Dragon Junction box to a point 66 yards north of the north end of the platforms, and from that point it is still a rising gradient of 1 in 93 into the station itself.

The up line, as it approaches the station, is on a left handed curve, and on that account the driver's view of the line in front of him is considerably restricted. There is also an up bay line on the north side of the up main line, and, when there are vehicles standing in the former, the view from an engine approaching the station on the up main line is further restricted.

The Company has exemption from block working through the station, and on account of the rising gradient it has a similar exemption for up trains between Dragon Junction signal box and Harrogate Station north signal box.

In accordance with this exemption from block working, two special rules have been made for the Harrogate north signal box with regard to the up traffic. Firstly, the signalman in that box is allowed to accept a train with "Line clear" from the Dragon box immediately the preceding train has passed his box; and secondly, trains which are to be admitted to the station by the calling-on arm need not be brought to a stand at the home signal, but the calling-on arm may be lowered provided the speed of the train has been sufficiently checked to enable the driver to stop it at that signal.

The actual wording of these rules is as follows :—

During clear weather and under ordinary circumstances the signalman at the Harrogate north cabin, after an up train with tail lamp attached has passed his cabin, may give the "Train out of section" signal to Dragon Junction, and a following train may then be accepted at "Line clear," but such train must not be allowed to pass the North Junction home signal if the preceding train is standing at the north end of the platform.

When the up platform line is occupied, the "Calling-on" signal may, on account of the rising gradient, be lowered, when the speed of an approaching train has been so reduced as to admit of the driver stopping at the "Home" signal, if necessary.

### *Evidence.*

*Henry Hill*, signalman, stated: I have been in the service of the Company about 30 years, during 29 of which I have been a signalman. I am employed in the Harrogate north signal-box, where I have been employed for six years. I came on duty on the 5th September at 4.35 p.m. to work until 12.35 a.m. on the 6th. I previously came off duty at 12.35 a.m. on the 5th. The 12.20 p.m. up train from Edinbro' to London ran in two portions. The first portion of it arrived at Harrogate at 4.39 p.m. At 4.37 p.m. I had given "Line clear" to Dragon Junction for this train. It arrived at my box at 4.39 p.m. The outer home signal was off for it. The inner home signal was at danger. This was necessary as the train had not been accepted by south box at "Line clear." It had, however, been accepted by the "Section occupied" signal. I kept, therefore, all my signals at danger until I saw that the train had been slacked at the "Home" signal. I then lowered the calling-on arm and the train ran past my box into the station. My instructions with regard to lowering the calling-on arm is that a train must be brought nearly to a stand at the home signal before it is lowered. This rule was complied with in the case of the above train. I was offered the second portion of the train by the Dragon Junction box at 4.45 p.m. I at once accepted it under "Line clear." I received "Train entering section" signal for it at 4.47 p.m., and it arrived at my box at 4.50 p.m. I had offered this train to south box at 4.45 p.m. It was at once accepted by the south box by the "Section occupied" signal at 4.45 p.m. My distant signal was at danger when that train ran past it. My outer home signal was lowered for the train. My inner home signal was at danger. The train ran past my outer home signal. I kept both my main home signal and the calling-on arm at danger until the train was passing the outer home signal. I then lowered the calling-on arm. At that time the speed of

the train had, in my opinion, been sufficiently slacked to enable the driver to stop at the home signal. When I saw that that was the case I lowered the calling-on arm. I should say that the speed of the train when it passed my box was, roughly speaking, eight miles per hour. The speed was about the same that trains ordinarily run into the station under the same conditions. I was quite satisfied in my own mind that the driver had slacked his train before I lowered the calling-on arm. I had been standing with the lever in my hand watching the train until I thought he had slacked sufficiently. As far as I remember it was a bright clear day without any fog. Just before the train reached the platform, and before the collision occurred, I noticed that the driver did not appear to me to be sufficiently checking his train. Quite two-thirds of the trains that run into Harrogate Station run in exactly the same conditions as on this occasion, and no similar mishap has occurred before.

*James Haley*, guard, stated: I have been 27 years in the service of the Company, during 21 of which I have been a guard. I came on duty on September 5th at 9.10 a.m. to work until 8.29 p.m. I had nearly three hours off at Newcastle in between. I came off duty on September 4th at 5.25 p.m. I was in charge of the relief portion of the 12.20 p.m. up train which started from Newcastle. My train consisted of an engine and tender, and the following carriages attached to it in the order given :—

			Wheels.
1 brake third	...	...	8
1 composite	...	...	8
1 composite	...	...	8
1 third	...	...	8
1 carriage brake	...	...	8

We arrived at Harrogate Station at 4.38 p.m., and came to rest at the up platform. When we ran

into the station the outer home signal was off for us. I did not notice whether the inner home signal or the calling-on arm was lowered for us. At the time the collision occurred I was standing near the second carriage from the engine. The first I knew of the collision was hearing porter Kestley shout out "She's here," but I myself did not see the second train approaching until the collision occurred, and I cannot say therefore at what speed it was moving. The collision was not a very severe one according to my idea. The rear vehicle of my train was slightly damaged, but I do not think the other vehicles were damaged at all, and none of the vehicles of my train were derailed. My train was fitted with the Westinghouse automatic brake working blocks on all wheels of the carriages. It was in good order. I do not know whether the brake blocks were applied to my train at the time of the collision. My train was forced forward a little by the collision.

*J. T. Stead*, driver, stated : I have been 22 years in the service of the Company, during six and a half years of which I have been a driver. I came on duty on the 5th September at 8.10 a.m. to work until 6.10 p.m. I came off duty on September 4th at 6.40 p.m. On September 5th I was driving the 12.20 p.m. up train from Edinbro' to London, joining the train myself at Newcastle. My engine was a four-wheels-coupled bogie tender engine running chimney first. It was fitted with the Westinghouse automatic brake, working blocks on the four coupled wheels and on the tender wheels, and with a hand brake working the blocks on the tender wheels. My brakes were in good order. I am well acquainted with Harrogate Station, having worked trains through it for about six years. I remember my train approaching the Harrogate north signal-box. I remember passing the up distant signal. It was at danger when we passed it. The outer home signal was off for us. When I first sighted the inner home signal it was against us. I could sight the inner home signal before I passed the outer home. When I was passing the outer home signal I opened the whistle, and the calling-on board fixed underneath the inner home signal was at once pulled off for me. My speed on passing the outer home signal was about 10 miles per hour, and I could have brought my train to a stand before reaching the inner home. When I saw the calling-on arm lowered for me I proceeded cautiously forward. When I reached the end of the platform I found that there was a train standing with its rear bogie carriage in rear of the commencement of the old portion of the covering. My mate at once shouted to me "Whoa," and I myself saw it at the same time as he shouted, but we were unable to stop before we ran into it. Directly my mate shouted to me I applied the brake. On September 4th, the day previous to the accident, I was driving the same train into Harrogate Station, and I had to whistle four times before the calling-on arm was lowered for me. When I arrived at the platform I found absolutely nothing standing at that platform, but on September 5th I found a train standing at the platform further back than I expected to find one. When a train is admitted to the platform under the calling-on arm it is not usual to find a train standing so far back as was the case on this occasion. The only rule I have got regarding the use of the calling-on arm is rule 43b, which says that unless instructions are issued to the contrary the calling-on arm must not be lowered until the train has been brought to a stand at the home signal. I have never heard of any instructions

being issued to the contrary of this rule. I have never seen any rule to the effect that the calling-on signal may be lowered when the speed of an approaching train has been so reduced as to admit of the driver stopping at the home signal. I consider that the speed of my train when it reached the platform was not more than four or five miles per hour, and it was at that point that I first saw the train in front of me. The bogie carriage was not more than eight or ten yards from me when I first sighted it. The fact of my being unable to see the bogie carriage sooner was due to there being carriages on the sidings. I had steam still full on when I saw that the inner home signal was at danger. The first time that I shut off steam at all was after I had passed the calling-on board. Before I reached the platform I shut the steam still further, and just before I sighted the bogie carriage I turned steam off entirely. I first applied my brakes when I sighted the bogie carriage in front of me. I quite understand that the lowering of the calling-on arm means that the section is not clear, that there is a train standing at the platform, and I was quite prepared to find a train somewhere at the platform, but I was not prepared to find this train quite so close to me. I have very often, previous to the occasion, been admitted into the Harrogate Station by the calling-on arm, and as a rule the calling-on arm is lowered before we come to a stand. What occurred on this occasion was not therefore unusual, except the finding of a train so far down the platform. I have never run into Harrogate Station before without finding room for my whole train at the platform. Even if my train had been brought to a stand before the calling-on arm was lowered I do not think it would have prevented this accident.

*John Edward Horner*, fireman, stated : I have been about 10½ years in the service of the Company, during seven and a half of which I have been a fireman. I was on duty with driver Stead on September 5th, and I worked the same hours as he did on that day and on the previous day. I remember our train arriving at Harrogate north signal-box. The outer home signal was off, and the calling-on arm under the inner home was also off for us. When we passed the signal-box our speed was about eight or ten miles per hour. I sighted the train in front of me when we had just reached the station platform. At that time our speed was only about four or five miles per hour. I shouted out to my driver "Whoa." I am not quite sure whether steam was off previous to my shouting to him. I think that he shut off steam immediately that I shouted "whoa," and he then applied the brakes. The brakes appeared to check the speed of the train a lot, and at the time the collision occurred we were going very slow. I have often run into Harrogate Station before on trains. Our speed on running into the station on this occasion was just about the usual speed. I have frequently previous seen trains admitted to Harrogate Station by the calling-on arm, and on these occasions we generally find a train standing in the station at the top end of the platform. I had never found a train standing as far down the platform as was the case on this occasion.

*Charles Bellamy*, guard, stated : I have been 17 years in the service of the Company, during seven of which I have been a guard. I came on duty on September 5th at 1.5 p.m. to work to 8.50 p.m. I came off duty on the previous day at 7.30 p.m. I was in charge of the 12.20 p.m. up train to London, and I joined the train at

Berwick. My train consisted of the following carriages attached to the engine in the order given :—

			Wheels.
1 brake third	...	...	12
1 composite...	...	...	12
1 composite...	...	...	12
1 third-class dining car	...	...	8
1 first-class dining car	...	...	8
1 composite...	...	...	12
1 brake third	...	...	12

These vehicles were all fitted with the Westinghouse automatic brake working blocks on all the wheels of the train. The brakes were in good order. I was riding in the rear brake. The first

I knew of the collision was feeling that the train was brought to a sudden stop, and then I went to the front and found out what had occurred. I did not at first really know that we had been in collision. I had noticed that we were admitted to the station by the calling-on arm. There was nothing unusual about our speed of entering the station. I should estimate our speed when passing the signal cabin at seven or eight miles per hour, and about four at the time the collision occurred. I did not notice that the brakes were applied before the train actually stopped. I had not applied the brakes myself, as the speed of the train was so moderate that I did not consider it necessary to do so.

### Conclusion.

This collision must, I consider, be regarded as entirely due to want of care on the part of driver Stead and fireman Horner, who were in charge of the engine of the 12.20 p.m. passenger train.

That train had been duly accepted from Dragon Junction by signalman Hill, who was on duty in the Harrogate north signal box, and driver Stead himself corroborates signalman Hill's statement that, when the train was approaching the inner home signal, its speed was such that it could have been brought to a stand at that point. Hill appears, therefore, to have been thoroughly justified, in accordance with the Company's rules, in lowering the calling-on arm for the train to enter the station.

Both driver Stead and fireman Horner admit that it was the calling-on arm, and not the inner home signal, which was lowered for them, and that they passed that signal under the clear understanding that there was another train in the station in front of them. In spite, however, of this knowledge they allowed their engine to come into collision with the relief train, which was standing in the station with its rear end at a point 82 yards from the commencement of the platform.

Driver Stead pleaded that he was not acquainted with any rule of the Company which permitted the calling-on arm to be lowered until a train had been brought to a stand at it, but he subsequently admitted that, though he was unacquainted with any such rule, he knew perfectly well that it was customary to do so, and that he himself had frequently been admitted to the station under those conditions ; in that respect, therefore, nothing unusual was done on this occasion, and, as a matter of fact, everything that was done was entirely in accordance with the Company's rules.

Stead further admitted that even if his train had been brought to a stand at the inner home signal he did not think that it would have prevented the occurrence of this accident. The fact of the train not having been brought to a stand at the inner home signal cannot therefore be regarded in any way as absolving driver Stead from his responsibility in connection with this accident.

Both driver Stead and fireman Horner further state, firstly, that it was unusual when admitted to the station by the calling-on arm to find a train so far down the platform as was the case on this occasion ; and secondly, that the curvature of the line and the vehicles on the bay line prevented their seeing the train in front of them in time to avert the collision.

The first plea, viz., that it was unusual to find a train so far down the station, cannot, I consider, be accepted as any excuse for the driver or fireman ; they were fully aware that they would find a train somewhere in the station in front of them, and they were not justified in assuming that it would be standing precisely where they usually found trains.

As regards their second plea, viz., that their view was interfered with owing to the curvature of the line and owing to the presence of vehicles in the bay line, this is undoubtedly true to a certain extent, and especially in the case of the driver, whose position was on the outside of the curve. A trial was, however, made on the spot under precisely the same conditions as obtained when the collision took place, and it was found that the fireman could have seen the rear end of the train when he was 120 yards distant from it, though the driver could not do so till he was within about 50 yards of it. Considering that the driver and fireman were well aware that there was a train in front of them it was the duty of both of them to have kept a most careful look-out, and had the fireman done so he could have seen the train in front of him in ample time to have

prevented the collision. And at the speed at which the driver states that his train was moving he too could have done the same if he had seen it as soon as it came within his view.

There can, therefore, in my opinion be no doubt that the responsibility for this collision must rest on the driver and fireman on account of their not having exercised sufficient care when entering the station.

The Company give them both good characters, and they had been on duty eight and a half hours at the time of the accident.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
P. G. VON DONOP,  
*Lieut.-Col., R.E.*

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#### APPENDIX.

##### DAMAGE TO RELIEF TRAIN.

Tender of Engine, No. 1,930.—Both inside frames and front buffer beam bent, centre drag-beam rivets broken and loose, brake weigh-bar shaft damaged.

Composite, No. 2,686.—One end bracket broken.  
Third-class carriage, No. 2,671.—Two headstocks, one cross rail, one side panel broken, bogie frame bent, floor deals all damaged.

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Printed copies of the above Report were sent to the Company on the 27th October.

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#### SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
4th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 21st August, the result of my inquiry into the circumstances under which an accident occurred to a passenger train on the 17th August, about 9.30 a.m., at Elephant and Castle Station, on the South-Eastern and Chatham Railway.

In this case the 9.25 a.m. down train from Holborn Viaduct to Queenborough Pier was travelling over a crossing at the north end of the station, when several of the vehicles became derailed. Some of the coaches found their way back to the rails, and when the train was brought to a standstill just clear of the station platform, only the last, a four-wheeled brake van, was actually found to be standing on the ballast. Several of the vehicles were lock-buffered.

The passengers, fortunately, all escaped actual injury, but one lady fainted from the effects of shock.

The train was composed of a four-wheels-coupled engine and tender, and ten vehicles, namely, four four-wheeled brake and parcel vans, two eight-wheeled bogie composites, three six-wheeled third-class, and a four-wheeled brake van at the rear. It was fitted throughout with the continuous brake, which was in good order.

The details of damage to coaching stock and permanent way will be found in the Appendix.

#### *Description.*

Elephant and Castle Station lies between Borough Road and Walworth Road. There are four lines of rail through these stations. The western pair of lines is used for the Metropolitan train service between Victoria and the City. The eastern pair is for the main line service between the City and Herne Hill.

The railway is laid on the level between the named points.

The four lines approach Elephant and Castle Station from the north by a curve to the right with a radius of 35 chains. After a short length of straight line over the New Kent Road bridge, the two main lines run through the station on a second curve to the right, with a radius of 45 chains. The main lines are separated from the Metropolitan lines in the station by an island platform.



The train in question travelled on the down main line, the most eastern of the four lines of way. It approached the station from the north, and passed over three sets of trailing points within the limits of the station yard. The first of these connected the down with the up main line by a crossover, and was about 100 yards from the northern extremity of the down main platform. The second, about 60 yards from the same spot, gave access to sidings. The third set of points, belonging to a second up and down crossover road, was nearly opposite to the southern extremity of the down main platform, which has a length of about 115 yards.

The point of derailment was at the crossing of the northern crossover road with the down line, and the rear brake van came to a stand about 27 yards south of the second crossover, having run a distance of about 253 yards off the metals.

Elephant and Castle signal cabin is situated at the northern end of the island platform.

### *Evidence.*

*William George Wilkinson*, driver, states: I have 16 years' service with the Company as a driver. My hours of duty on Sunday 17th August were from 7.50 a.m. till 9.30 p.m. I had an interval of three hours off duty from 12 to 3 p.m. I was driving the 9.25 a.m. down train Holborn Viaduct to Queenborough Pier on the day in question. My engine was a four-wheels-coupled tender engine, chimney leading. It was fitted with the Westinghouse automatic brake, with blocks on the four driving and six tender wheels. The brake was in good working order, and it was fitted with an ejector operating the vacuum brake on the train. We ran through from St. Paul's without being checked by any signals. Our speed approaching Elephant and Castle Station would be about 30 miles an hour. Whilst running past the platform I happened to look back from the right hand side of the engine and saw dust flying from the rear of the train. I immediately applied the power brake, as I thought something was wrong. I applied the brake at once to its full extent, and the train came to a stand in about its own length. The speed of the train must have been decreasing before I applied the brake, otherwise we would not have come to a stand so quickly. The engine kept the rails the whole distance. I experienced no unusual movement on the engine in passing over the three sets of trailing points in the station yard. I got down off the engine after coming to a stand, and went back and found the rear brake with all four wheels off the rails. Five or six of the coaches were lock buffered. I saw platelayers working on the down main as we approached the station. They got out of the way, but showed me no flag and gave no signal. I cannot say whether the power brake had been applied from the rear of the train before I made my application.

*Joseph Austin*, fireman, states: I have about seven years' service as fireman. I was with driver Wilkinson on the day of the accident, and my hours of duty were the same as his. I came off duty at 1.30 a.m. on Sunday morning, having done a special tour of driving on Saturday night. This extra tour was quite exceptional. I had no idea that anything was wrong with the 9.25 a.m. train, until my mate applied the power brake. I had not noticed any slackening of our speed before he made the application. I saw the men in the permanent way jump clear of the down main line as we neared the station. I heard no noise of shouting, and saw them give no signal. I saw no one else on the line before we reached the men who were engaged in working on the down main line.

*Harry Peacock*, signalman, states: I have eight years' service as signalman and have been five

years at Elephant and Castle signal cabin. My hours of duty on 17th August were from 6 a.m. till 2 p.m. Borough Road cabin is switched out on Sundays, and the 9.25 a.m. train ex-Holborn Viaduct was signalled to me from Charlotte Street Junction and accepted at once. I pulled off all the down signals for the train. I had instructions on the special notice sheet to block the down main line from 10 a.m. till 5 p.m. on the day in question. The ganger has to sign my train book before he takes possession of a line. Ganger Miles was in charge of the permanent way between Borough Road and Elephant and Castle Stations. I expected him therefore to come to the cabin about 10 a.m. to sign the book. For ordinary platelaying work, which does not involve blocking the line, the ganger is not obliged to give me notice of the work. On the 17th of August Miles came to my cabin about 9 a.m. and asked me if I had seen the special notice above referred to. I said, "Yes." I asked him if he would block the line after the boat train leaving Holborn at 9.55 had passed. This train is due to pass Elephant and Castle Station about 10.2 a.m. He said, "Yes." He told me then that he was going to renew some chairs on the down main. I said, "During the time you have possession of the line?" He replied, "Yes." After that as he was leaving the box he said, "I am going to get ready for the work." Then he went away. I was booking a Metropolitan down train when the 9.25 a.m. was approaching the station. I heard the levers controlling the points on the down main line rattle, so I went to the window, and saw the second or third coach of the 9.25 a.m. train as it passed my box. It was running off the rails towards the six-foot-way. I went back at once to the frame. I had pulled off the up main home signal for a South-Western train. I threw this signal to danger. I then put the Sykes switch in position to prevent the down main instrument at Charlotte Street Junction from showing "Line clear" after I put the down main starting signal to danger. I then placed the down main distant, home and starting signals in the danger position. The engine I should judge would at this moment be passing the down main starting signal. I then telephoned to Walworth Road to stop the up South-Western train. Whilst telephoning I saw the two last coaches of the 9.25 a.m. running past the platform, but I cannot say for certain whether they were off the rails or not. I should judge that the train was travelling at its usual rate of speed when I first saw that one of the coaches was derailed, possibly about 25 miles an hour. A ganger has to inform the signalman concerned, and sign his train book only when his work on the permanent way necessitates the actual blocking of the line concerned.



*John Tooley*, passenger guard, states: I have 23 years' service with the Company as passenger guard. My hours of duty on Sunday 17th August were from 8.30 a.m. till 8.30 p.m. I came off duty on the preceding Saturday night at 7.40 p.m. I was head guard of the 9.25 p.m. down train on the day in question, and was riding in the second vehicle behind the engine. The train was composed of the following vehicles in the order named:—

- 1 4-wheeled parcel van.
- 1 4-wheeled brake van.
- 2 4-wheeled parcel vans.
- 2 8-wheeled bogie composites.
- 3 6-wheeled 3rd class coaches.
- 1 4-wheeled brake van.

All the wheels were fitted with blocks operated by the Vacuum continuous brake, except the centre pairs of wheels in the six-wheeled coaches. The brake was in good working order. As we were approaching Elephant and Castle Station, somewhere about the New Kent Road bridge, I noticed my brake van give a jump as if it had struck something or run into something, so I looked out on the platform side and saw nothing owing to the curve of the line. I then went across to the six-foot side, and saw there was something amiss with the rear part of the train, because of the dust that was rising. I went to the brake and applied the vacuum hard on, and held the handle down till the train came to a stand. We were then about the end of the covered way in the station. When the train stopped, I got down on to the ballast in the six-foot-way, and went back to the rear of the train, and found the last vehicle was off the road. The train was pretty full of passengers in the rear portion, but none of them actually complained of injuries. I noticed that there were axle-boxes broken on both sides of the train in various coaches, and that some of the carriages were buffer locked. The signalman came down and I ascertained he had taken the necessary precautions to protect the train.

*William Miles*, ganger, states: I have about 36 years' service with the Company, and have been ganger since February, 1890. My section extends from Borough Road Station to Penrose Street, between Walworth Road and Elephant and Castle. I have charge of all four roads (two Metropolitan and two main lines), for this length of about 70 chains. I have five men in my gang. I received instructions from Mr. Archer, permanent way inspector, to block the down main line from 10 a.m. till 5 p.m. on the 17th August, for the purpose of repairs to a bridge between Borough Road and Elephant and Castle Stations. He also gave me permission to renew some chairs in this length, but he did not instruct me to do this work between any specified hours. I came out on work about 9 a.m. and went to the signal cabin. I told signalman Peacock that I was going to renew some chairs. I did not tell him when I was going to commence this work. I

asked him if he knew that the down main line was to be blocked at 10 a.m., and he said "Yes." I then left the cabin, and took out a C chair on the six-foot side of the down main line crossing of the up and down crossover road at the north end of the station. I ought to have blocked the road for this operation, but did not do so, because I thought I had time between the running of trains to do the work without blocking the line. The running wing rail was lifted, and I was putting in the keys of the A and B chairs of the crossing when the 9.25 a.m. train approached. The new C chair was under the rails, but not in its proper position when the train ran over it. I had no flagman out on the down line whilst carrying out the renewal of the chairs. I had four men with me that morning. One of these I had sent for an adze, another for spikes. I had therefore only two men left and could not send out a flagman, which I know it is my duty to do. I watched the train run over the crossing, and I saw the bolts in the rail-joint ahead of the crossing break, and the keys shake out of both the "A" and the "B" chairs. I could see there was one coach at least off the rails in the middle of the train, and one coach off at the rear of the train.

*Richard Archer*, permanent way inspector, states: My district extends from Victoria to Snow Hill, and also to Penge. I told ganger Miles to come out on Sunday (17th August) morning and block (No. 4) the down main line, for the purpose of bridge repairs, between Borough Road and Elephant and Castle. I also told him that he could renew the crossing chairs at the up and down crossover north of Elephant and Castle Station during the time the line was blocked. The line was to be blocked from 10 a.m. till 5 p.m. He asked me on the 15th inst. if he could renew these chairs. I told him specifically that he could do the work during the time the line was blocked. I also told him he might bring his other men out. He has five men besides himself, but one was ill. Allowing one man for a flagman, he would therefore have three other men left to renew the chairs. He was not concerned with the bridge repair work, except so far that it was his duty to have a flagman out for the protection of the road which was to be blocked. It would not be possible to renew a C chair without obstructing the running road, and the ganger should therefore have acted in accordance with paragraphs 250 and 251 of the Book of Rules and Regulations. Ordinary chairs can sometimes be renewed without blocking the line, but not crossing chairs. In my opinion ganger Miles is responsible for the accident in not carrying out the regulations. I have been 16 years in charge of this district, and Miles has been one of my gangers for 12 years. I have found him hitherto a respectable, reliable man. I have had no occasion to report him for irregularities. I have heard that of late he has had many family anxieties and troubles.

### Conclusion.

It is clear that this derailment was caused by the condition of the permanent way at the crossing of the main line crossover road at the north end of Elephant and Castle Station. Ganger Miles states that the "C" chair, holding the two crossing rails and both wing rails, was not in position, and the keys of both the "A" chair at the knee of the crossing and the "B" chair at the point of the crossing were so loosely in position that they shook out as the engine passed over the crossing. The running wing rail must have been thrown out of position by the engine, and the derailment of the coaches followed.

It is difficult to say for certain how many of the vehicles were derailed, but from the Appendix it will be seen that five out of the ten carriages had one or more axle boxes broken, and it appears to be probable from these broken axle boxes and the locked buffers that at least eight out of the ten coaches were off the rails for a shorter or a longer period, first towards the six-foot way, where a ground disc signal was broken, and afterwards towards the platform. There are marks to show that some of the vehicles regained the rails at the main line crossing at the south end of the station.

The responsibility for permitting the train to travel over the line when it was, as above explained, in an unsafe condition, rests with ganger Miles.

He appears to have had instructions from inspector Archer to carry out renewals of these crossing chairs during the time that the down main line was, in accordance with special instructions, to be blocked for bridge repair work, viz., between the hours of 10 a.m. and 5 p.m. In a conversation with signalman Peacock, Miles assented to the proposal to block the road after the boat train due at 10.2 had passed. Instead of waiting until the line had been blocked, Miles appears to have commenced work about 9.15 a.m., and to have removed a crossing chair and keys of two or three other chairs without sending out a flagman, and without warning the signalman of his intention. He admits that it was his duty to have blocked the line before commencing the work he was engaged upon.

I find, therefore, that the whole blame for this accident lies with ganger Miles, in that he neglected the ordinary regulations and precautions laid down for the protection of trains during an operation involving the obstruction of a running road.

Miles has been in the service of the Company for 36 years, and has been in the responsible position of ganger or foreman in charge of a section of permanent way for more than 12 years. His character hitherto has been that of a reliable and trustworthy man. It is the more difficult to understand how he could have been so culpably negligent in this instance.

It is, however, too often the case that permanent way men in carrying out renewals of chairs and sleepers appear to be careless of the rules and regulations which have been laid down not only for the safety of the traffic on the railway but for their own safety also. There have been of late a series of derailments which give ground for this contention. I may quote as examples the accident on the Glasgow and South-Western Railway at Kilmarnock Station, on the 19th May, and that at West Croydon Station, on the London, Brighton and South Coast Railway, on the 9th July.

This carelessness and neglect of rules argues, in my opinion, a lack of discipline in the maintenance staff, the growth of which Railway Companies should do all in their power to summarily check.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
J. W. PRINGLE,  
Major, R.E.

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#### APPENDIX.

##### DAMAGE TO COACHING STOCK.

No. 348, luggage van, buffers bent and one end grazed.	No. 3,338, third-class carriage, one buffer bent; four axle-guards bent, and axle-box broken.
No. 39, brake van, buffers bent and one end grazed.	No. 3,122, third-class carriage, two buffers bent, two axle-guards bent, and one step-board damaged.
No. 221, luggage van, two buffers bent, and axle-box broken.	No. 3,346, third-class carriage, one bent buffer; two axle-guards bent; step-board damaged, and bearing spring broken.
No. 223, luggage van, two axle-boxes broken, and brake work damaged.	No. 290, brake van, two buffers bent; two axle-guards bent; two step-boards damaged, and two axle-boxes broken.
No. 1,157, composite carriage, no damage.	
No. 3450, composite carriage, one axle box broken.	

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##### DAMAGE TO PERMANENT WAY.

One 14-ft. wing rail broken; one 30-ft. rail bent; two 12-ft. switches broken; five force-rods broken; three crossing chairs broken; five heel chairs broken; seven slide chairs broken;	four check chairs broken; 165 middle chairs broken; four joint chairs broken; 104 fish bolts, 29 stud bolts, 10 joint chair bolts, six sleepers, 610 trenails, and 150 keys replaced.
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Printed copies of the above Report were sent to the Company on the 2nd October.

## SOUTH WALES MINERAL RAILWAY.

Railway Department, Board of Trade,  
8, Richmond Terrace, Whitehall, London, S.W.,  
September 13, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in compliance with your Order of the 22nd August, the result of my enquiry into the cause of the collision which occurred on the 16th August, between two mineral trains in Gyluchy Tunnel, on the South Wales Mineral Railway.

In this case the 4 p.m. train from Incline Top, Briton Ferry, came into collision with the 4.30 p.m. train from Glyncoirwg, while the two trains were running in opposite directions on the single line of railway.

Each train consisted of a six-wheels-coupled tank engine fitted with hand brakes on all six wheels, an empty coal truck, and a guard's van.

The engine of the train from Glyncoirwg was running bunker first.

The drivers and firemen of both engines were injured, the driver of the engine from Incline Top severely, and a cashier of the Glyncoirwg Colliery Company, who was riding on the engine from Glyncoirwg, and seven passengers who had permission to ride in the guard's van were severely injured; two of the latter succumbing to their injuries.

Details of damage to rolling stock are given in the Appendix.

#### *Description.*

This line is used for mineral trains only, and is not equipped in any way for passenger traffic. It is about 12 miles in length from Briton Ferry to Glyncoirwg, and between Briton Ferry and Incline Top is a steep incline of about 1 in 10, the coal waggons being let down this by means of a wire cable controlled by a braked wheel at the head of the incline.

From Incline Top to Glyncoirwg the line is a single one, about 11 miles in length, with passing places for trains at Ton Mawr and Cymmer,  $3\frac{1}{2}$  and  $7\frac{3}{4}$  miles respectively from Incline Top.

At Ton Mawr a connection is made with a branch of the Port Talbot Railway, and at this place is a signal box for working the traffic on to and off that railway.

The signalman is appointed by the Glyncoirwg Colliery Company, and the Port Talbot Company pay half his wages. This signal box is in telephonic communication with Incline Top only.

At Cymmer there is a small office and a weighbridge with telegraphic communication to both Incline Top and Glyncoirwg. At this place there is a siding connection with the Great Western Railway.

There are three trains daily each way, timed to pass at Cymmer unless special instructions are issued by the traffic manager at Briton Ferry or Glyncoirwg for the trains to be worked otherwise.

The gradients are not severe for this class of line, the steepest being 1 in 70, and the trains are not as a rule very heavy.

#### *Evidence.*

Arthur Steel, Traffic Manager of the South Wales Mineral Railway from Briton Ferry to Incline Top, states: This line is roughly 12 miles long from Briton Ferry to Glyncoirwg. From Incline Top which is one mile from Briton Ferry, the line is single with two passing places at Ton Mawr and Cymmer respectively. There is telegraphic communication between Incline Top and Cymmer and between Cymmer and Glyncoirwg. There is telephonic communication between Incline Top and Ton Mawr, but none between Ton Mawr and Cymmer. There are three trains a day between Glyncoirwg and Incline Top. The standing regulations are that they pass each other at Cymmer, and no special instructions should be given to alter the standing orders until communication has been got through from both departing points that the road is clear. There were no

printed instructions at the time of the accident. There had been some previously, but they had fallen into disuse. Instructions should only be given for special working by me at Briton Ferry end and Mr. Matthew Evans or his assistant at the Glyncoirwg end of the line. I gave no special instructions on the 16th August, the day of the accident. I have been 35 years connected with the line and this has been the method of working all that time, and there has been nothing approaching a collision before. The line has never been passed for passenger traffic, and there are no instructions given to the employees as to carrying passengers, beyond an order to prohibit their riding on the engine, and it has always been the custom for passengers to ride in the brake vans of trains. No charge has ever been made to passengers. Formerly this railway was the only

means of communication with Glyncoerrwg; now there are the Great Western Railway and Rhondda and Swansea Bay Railway, which both run to Cymmer about 3 miles from Glyncoerrwg, by which passengers can get on to the main line system, but Neath, the marketing place for Glyncoerrwg, is twice the distance by either of those lines.

*W. Matthew Evans* states: I am the traffic manager for the section of the line between Incline Top and Glyncoerrwg. I have heard Mr. Steel's evidence, and agree with it as to the method of working the line. On the 16th August the third down train left Glyncoerrwg about 4.30 p.m. I gave no instructions as to any special working of this train. I was not on duty at the time, and George Stephens, telegraphic and traffic clerk, was in charge at the time at Glyncoerrwg. I am colliery manager as well as traffic manager, and the despatch of trains has always been carried out by the traffic clerk.

*George Stephens*, traffic and telegraph clerk at Glyncoerrwg, states: My duties are to despatch coal, label waggons, and to signal the departure of trains by wire to Cymmer and Briton Ferry. There are three trains a day from Glyncoerrwg; the first at 9 a.m., the second at 12.50 p.m. and the third about 4.30 p.m., and at those times I tell the driver to start without previously ascertaining that the section to Cymmer is clear. Our standing instructions are that trains are to pass at Cymmer, and if trains are required to cross at Ton Mawr the instructions are to have line clear to Ton Mawr. Line clear to Ton Mawr is obtained by wiring to Incline Top, and Incline Top communicating with Ton Mawr and then Incline Top sending the reply to Glyncoerrwg. On the 16th August I gave no special instructions to Rowland Hughes, the driver of the third train, and according to the standing orders he should have waited at Cymmer to cross the up train. I did not tell Hughes to start on the 16th, as I was at the office, and the train started from the siding about 25 yards away. On this occasion there were no coal waggons, so the train left at the scheduled time; if there had been coal waggons I should have told him to start. On the 16th Mr. Perrott, the cashier of the Company who was in Glyncoerrwg and who was returning by the third train said to me, "Mr. Tallamy got home in good time a fortnight to-day, he took the engine to Ton Mawr. I am going to take the engine through to Ton Mawr." I said "All right, you arrange at Cymmer," the same as Mr. Tallamy had done. I knew that Mr. Tallamy had done this and it was with my knowledge and sanction, and I understood when Mr. Perrott spoke to me about it, that he wanted to do the same, and I was quite willing that he should have the same advantage. Hughes, the driver, was not present when I had this conversation with Mr. Perrott. Hughes told me he was going through to Ton Mawr and I said, "All right." I gave him to understand that it was all right. As the train started I wired to Cymmer that the train had started but got no reply, and then I wired to Incline Top to ask where the other engine was; by that time the Glyncoerrwg engine had gone away and was beyond my control. I received a message from Incline Top, "Engine just left." I told Incline Top to telephone to Ton Mawr to stop the up train, but got no reply as there was no one at the Ton Mawr signal box. When I let the Glyncoerrwg train go without first ascertaining that the section to Ton Mawr was clear, I did so on the understanding that Mr. Perrott was to make the arrangements at Cymmer for the two trains to pass at Ton Mawr. Mr. Perrott said he would do this.

*John Perrott*, cashier to the Glyncoerrwg Colliery Company, states: On the 16th August I was returning by the third train from Glyncoerrwg to Briton Ferry, and I asked Mr. Stephens if we could go on to Ton Mawr, instead of having the long wait at Cymmer as usual. He said, "All right." I know that the standing instructions are that trains pass at Cymmer. When Mr. Stephens said "All right" about passing at Ton Mawr, he said nothing about my making arrangements at Cymmer for the trains to pass at Ton Mawr. After finishing the payments, I went out of the office with Mr. Stephens and met Rowland Hughes, the driver, just outside, and said to him, "George, (i.e., Mr. Stephens), says we can pass at Ton Mawr this trip." Hughes then asked Mr. Stephens "Is that right?" and Mr. Stephens said "All right." Hughes then brought the engine out ready to go away, and before he left he again asked Mr. Stephens if it was all right to go on to Ton Mawr, and Mr. Stephens said "Yes." Mr. Stephens walked towards the office after the first conversation, and I thought that he had gone there to wire to Incline Top to make the arrangements. I had said nothing to Rowland Hughes before speaking to Mr. Stephens about running on to Ton Mawr. I am quite sure that Mr. Stephens said nothing to me about making any arrangements at Cymmer. I was riding on the engine of the train on the journey down.

*Rowland Hughes*, engine driver, states: I have been 36 years in the Company's service, 28 years as driver. I came on duty at 5.45 a.m. on 16th August to work till 5 p.m. or 5.30 p.m., having previously come off duty about 6 p.m. on 15th. The standing orders are for trains to pass at Cymmer, and besides Mr. Evans Mr. Stephens gives instructions as to any departure from these orders at the Glyncoerrwg end of the line. On the 16th I drove the third train down, and Mr. Stephens instructed me to go on to Ton Mawr, but I stopped at Cymmer for a few minutes. I saw no signalman there in the box, but I did not look for him as I had orders to go on to Ton Mawr, so I proceeded. If the signalman had wanted to have stopped me there, he would have come out and signalled to me by hand. When I was half-way through Gyluchy tunnel, I saw the up train enter the tunnel; I applied the brakes, and did all I could to stop the train, and I did so before the collision occurred. I was running bunker first at the time. My engine was a six-wheels-coupled tank engine, fitted with hand brakes only on all six wheels. I have always observed the rule of crossing the other train at Cymmer, unless given special instructions to go on to Ton Mawr. The first I heard of going on to Ton Mawr on this occasion, was when Mr. Perrott and Mr. Stephens were just outside the office, and I heard nothing from Mr. Stephens as to any arrangements being made at Cymmer. I drove the same train a fortnight previously, and then I was told nothing at Glyncoerrwg about passing at Ton Mawr, but Mr. Tallamy left the engine at Cymmer and went to the signal-box, and when he returned said he had made arrangements to pass at Ton Mawr, which we did.

*W. J. Revell* states: I come on as relief man at Cymmer once a year for a fortnight, and my duties are chiefly to weigh the coal waggons proceeding on to other lines. It has always been my custom to leave work by the second train, on Saturdays, as no coal comes down by the third train. On the 16th August I told driver Rowland Hughes that I was going by the second down train when he passed with the up train which crossed it at Cymmer, and I locked the office up before leaving at about 1.30 p.m.

*Conclusion.*

The South Wales Mineral Railway on which this collision occurred is as its name implies used for mineral traffic only, it has never been inspected on behalf of the Board of Trade, and is not equipped in any way for the conveyance of passengers.

Its termination at Glynccorrwg lies in a district difficult of access, and ever since the line was first opened over 40 years ago, it has been the custom to allow people residing in the neighbourhood to ride in the empty trucks or brake vans of the trains, in order to go to and from Neath, 2 or 3 miles distant from Incline Top, to do their marketing. I am informed by the officials of the railway that no charge has ever been made to anybody for this privilege, so that such persons are not passengers in the ordinary sense of the word.

The traffic on the line is worked in a method that is not permitted on a passenger line, but if the authorized instructions had been carried out no such collision as the one now reported on could have happened, and I am informed no similar one has occurred since the line was first opened.

The line is a single one and the standing instructions at the time of the collision were, "that trains pass each other at Cymmer unless special instructions to pass at Ton Mawr are issued, and no such special instructions are to be given until communication has been got through from both departing points that the line is clear."

On Saturday 16th August, Mr. Perrott, a cashier of the Colliery Company, was going down from Glynccorrwg by the third train, and as he was anxious to get to Briton Ferry as soon as possible, asked Mr. Stephens, the traffic and telegraph clerk at Glynccorrwg, if the train could run through to Ton Mawr, and pass the up train there instead of waiting for it at Cymmer.

The conversation between the two on this subject was held in the presence of no one else, and the evidence of the two is contradictory.

Mr. Perrott's version is that when he asked Mr. Stephens if the train could pass at Ton Mawr the latter said "all right"; and that when Rowland Hughes, the driver of the down train subsequently asked Mr. Stephens if it was "all right" for him to run into Ton Mawr, the latter again said "all right," and that in consequence he (Perrott) assumed that Mr. Stephens would make the necessary arrangements.

Mr. Stephen's version is that Mr. Perrott came to him and said that "Mr. Tallamy (another cashier) took the train to Ton Mawr a fortnight ago and got home in good time. I am going to take the engine through to Ton Mawr," and that he replied "all right; you arrange at Cymmer" as Mr. Tallamy had done.

Mr. Perrott denies that Mr. Stephens said anything about making arrangements at Cymmer, and Mr. Stephens insists that he only gave permission for the engine to go through to Ton Mawr, on the understanding that Mr. Perrott was to make the necessary arrangements at Cymmer. There was no third person present when the conversation took place, so it is impossible to say which is correct.

Before the train started, Rowland Hughes, the driver, asked Mr. Stephens if it was all right to run through to Ton Mawr and was told that it was, and Mr. Stephens said nothing to him about making any arrangements at Cymmer.

Just as the train started at 4.30 p.m., Mr. Stephens says he wired to Cymmer to say the train had started but got no reply, he then wired to Incline Top to ask where the other engine was, and received a message back that it had just left. He then wired to Incline Top to telephone to Ton Mawr to stop the up train, but the signal box there was shut up, the signaller having left, so there was no possibility of communicating with either of the trains, which were thus proceeding in opposite directions on a single line, the down train with instructions to pass at Ton Mawr and the up train to pass at Cymmer, and naturally a collision ensued, as the up train could not see the down one approaching it being in a tunnel with a curve at the top end.

The tunnel being straight at the lower end, R. Hughes the driver of the down train caught sight of the up train as it entered the tunnel, when he was about half way through, and he succeeded in stopping his train just as it was run into by the up train.

Neither of the drivers, firemen, or guards are to blame in any way for the collision, as they were acting under instructions issued by authorized persons.

Although Messrs. Perrott and Stephens disagree as to the conversation between them, as to any arrangements being made at Cymmer for the train to pass at Ton Mawr, yet there is no doubt that it was Mr. Stephens' duty to have ascertained from Incline Top, before telling Hughes that he could run through to Ton Mawr, that the up train had received the necessary instructions to wait at Ton Mawr for the down train. He alone

on the spot had authority to authorize the down train to run through to Ton Mawr, and he should have first ascertained that the up train had received the necessary instructions. He accordingly in my opinion is to blame for the collision.

I do not consider Revell, the man at Cymmer is to blame, as he only comes on duty for a fortnight in the year during the holiday of the regular man, and he only acted as he had always done on Saturday afternoons when the coal traffic had ceased, as his duties were chiefly to weigh the coal waggons passing through his hands.

Barnes, the signalman at Ton Mawr, left his box without permission shortly after 4 p.m., on receiving a message from the Port Talbot Company that their traffic was finished for the day, and for this he is much to blame.

It will be seen from the above that the traffic was worked in a very lax way, but I am glad to be able to say, that immediately after the collision the Managers issued printed instructions as to the train service and method of working, and now any train required to pass another, except at Cymmer, is not to start without first obtaining a special running permit ticket from the officer in charge at the departing point; and no engine is to pass the point named on such permit ticket, until the driver has obtained a fresh permit ticket from the officer in charge at such point.

Also the clerk in charge at Cymmer weighbridge and the signalman at Ton Mawr box have received definite instructions that they are not to leave their boxes until the last trains have passed each night.

Similarly the Incline Top signalman has definite instructions not to leave until the arrival of the last train each night.

Also that no person other than the driver and fireman is to ride on the engine without written permission.

In addition, I consider that before a train is allowed to depart from any of the four points, viz., Incline Top, Ton Mawr, Cymmer, and Glynecorrwg, definite information should be received by the signalman or person in charge that the line is clear to the next point in advance. To do this, it will be necessary to connect Ton Mawr and Cymmer by telegraph, a distance of  $4\frac{1}{4}$  miles, but the expense would not be great, and the convenience would be very great for regulating the traffic and the passing of trains in safety.

I think too the Company would find it advantageous to have only one traffic manager, the line being only 12 miles in length, as this would also help to regulate the traffic on the whole line.

I have, &c.,  
E. DRUITT  
Major, R.E.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### APPENDIX.

##### DAMAGE TO ROLLING STOCK.

Up Train.—Engine frame broken and all the piston gearing carried away; cylinder plates broken and buffer plate smashed; waggon practically uninjured; brake van headstock completely gone, middle bearer gone, axle-boxes broken and brake gear.

Down Train.—Engine bunker driven in and smashed, iron headstock gone, brake gear broken; waggon turned over on side and side slightly damaged, but not seriously; brake van smashed to matchwood.

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Printed copies of the above Report were sent to the Company on the 2nd October.

## APPENDIX B.

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### REPORTS OF THE ASSISTANT INSPECTING OFFICERS OF RAILWAYS ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

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#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

18th August, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 30th July, the result of my inquiry into the cause of the accident which occurred on the 4th July to shunter Matthew Vass at Lochrin Iron Works Sidings, Whifflet, on the Caledonian Railway.

A "rake" of waggons was being drawn from No. 2 siding. Vass was riding in one of the waggons, and when attempting to jump to the ground he stepped on the buffer spindle as the train was being brought to rest, with the result that his foot was crushed between the buffer head and the socket as the waggons closed together.

There was no necessity for Vass to ride in the waggon, nor was there any need for him to attempt to jump from it while it was moving, therefore the accident was solely attributable to his own want of caution.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

18th August, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 30th July, the result of my inquiry into the cause of the accident which occurred on the 17th July to James Thomson at Cartsdyke, on the Caledonian Railway.

Thomson was fireman with driver Smith working a light engine from the locomotive sheds.

When leaving the shed he commenced to water the coal from the top of the tender. After completing the work, and when placing the bucket which he had been using at the back of the tender, Thomson came in contact with the overhead footbridge at Cartsdyke Station, and he was thrown down on the coals and badly injured.

An instruction is issued by the locomotive engineer warning men against the dangerous practice of going to the back of tenders while engines are in motion. Thomson informs me that he has never seen the instruction, but driver Smith tells me he has some slight recollection of seeing it, in which case he is to a great extent responsible for the accident, by allowing his fireman to expose himself in such a manner.

The instruction referred to has been issued in the form of a circular letter, to be posted at each locomotive depôt. I found, however, that the copy posted at Cartsdyke shed prior to the accident has been practically illegible for the last twelve months, and consequently useless, therefore it is not surprising that Thomson should state that he was



not aware of such a warning. This points to a lack of supervision which, no doubt, will receive attention.

The system of issuing such important instructions might be improved by placing each engineman in possession of a copy and receiving his signature of receipt, and I would suggest this plan for the Company's consideration.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

18th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 8th August, the result of my inquiry into the cause of the accident which occurred on the 18th July to shunter George Wilson at Larkfield Carriage Sheds, on the Caledonian Railway.

Wilson, who was performing shunting operations in the carriage sidings, brought an engine into No. 18 road against a brake composite. After attaching the carriage he signalled to the driver to come back into the shed, and jumped on to the footstep of the carriage with the intention of getting inside the brake compartment. His foot slipped, however, and he was unable to effect an entrance, with the result that he was crushed between the carriage and the shed doorway and considerably injured.

There is only a clearance of about six inches between the carriage and the doorway where the accident took place. Wilson was fully aware of this. Had he desired to ride inside the compartment when the carriage was being propelled into the shed, he should have got into the van before signalling the driver to come back. I therefore attribute the accident to his own want of caution.

It is to be regretted that more clearance was not provided when the sheds were built. To increase the space now, the front of all the buildings would have to be taken down. It seems hardly reasonable to ask the Company to undertake such a work, as with care on the part of the staff accidents of a similar description should not occur. I would suggest, however, that notices should be posted warning men of the insufficiency of clearance that exists.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

25th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 21st August, the result of my inquiry into the circumstances attending the accident which occurred on the 21st July to John Shaughnessy at Drumbowie Junction, on the Caledonian Railway.

Drumbowie Junction is situated on the single line branch from Morningside to Clelland Junction, and tablets have to be exchanged by hand with passing trains at this point. The speed restriction when an exchange has to be effected similar to the one under notice is 10 miles per hour.

Shaughnessy, who is signalman at Drumbowie Junction, informs me that when attempting to exchange tablets with the 8.35 p.m. passenger train from Morningside to



Holytown the tablet ring which he had to receive was pushed out rather far, and striking his face, he was badly cut about the eye. He also states that the speed of the train was too high to take the tablet with safety. Against this, however, the driver and firemen assure me that the speed of the train did not exceed the limit of 10 miles per hour, and that the cause of the failure to effect the exchange was due to the fact that Shaughnessy did not leave the box in time to take up a proper position. The train was afterwards pulled up in its own length, and therefore I think that the speed can not have been excessive. In any case Shaughnessy was not compelled to take the tablet if he considered it dangerous to do so. I understand that another signaller was with him in the box at the time, and taking everything into consideration I am inclined to accept the driver's statement as being the correct reason for the occurrence.

Tablets are exchanged with passing trains at two points on this branch. The traffic is not particularly heavy, and I am advised that the haulage of the branch is not confined to certain engines, but is distributed amongst a large number of other workings.

If arrangements could be made to limit certain engines to the branch I would suggest that mechanical tablet exchanging apparatus should be supplied. If this cannot be done, then I consider it might be an advantage to increase the diameter of the tablet rings and fit them with leather pouches firmly secured to the rings for the reception of the tablets, so that the exchange may be effected with as little difficulty as possible; and also to reduce the limit of speed to 7 miles per hour.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

20th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 12th September, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 26th July to John Menzies at Forfar Engine Sheds, on the Caledonian Railway.

At 4.30 a.m. Menzies was engaged in renewing the brake blocks of an engine standing on No. 2 shed road. For this purpose he was sitting on the rail with his legs between the two driving wheels. While he was in this position the engine was moved by another engine in front coming in contact with it, and Menzies had his right leg crushed by one of the wheels, his injuries subsequently proving fatal.

The engine, in front of the engine at which Menzies was working, was moved by cleaner Duthie, who was instructed to do so by Henry Hay, acting shed turner's assistant.

Instructions are in force on this railway stating that "Not to be moved" boards must be placed on engines at which men are working, and also stipulating that the wheels must be scotched. These boards were not exhibited on the engine at which Menzies was engaged, nor were the wheels scotched, the deceased man being alone to blame for this omission. The accident must therefore be attributed to this failure on the part of Menzies to provide for his own safety.

From the evidence which I obtained it would appear that it has been no uncommon practice at this shed for these orders to be disregarded in the past. It is to be hoped that more stringent measures will be taken to ensure strict compliance with them in future.

Cleaners are not authorised to move engines, and as Hay was aware of this he was to blame for instructing Duthie to set the engine back.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## CALEDONIAN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

24th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th August, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 19th August to Assistant Brakesman, John McKie, at Quarter Colliery, near Quarter Road, on the Caledonian Railway.

At 8.55 a.m. McKie took the shunting engine into No. 2 Store siding to attach ten waggons. After uncoupling the trucks from those standing in the siding he jumped on to the buffers between the sixth and seventh waggons and signalled to the driver to draw ahead. After the waggons had travelled from 50 to 60 yards a cry was heard and when the engine had been brought to rest McKie was found lying in the four-foot way under the trailing waggon, both his legs having been run over. His injuries were of such a serious nature that he died shortly afterwards. The deceased stated before he expired that he slipped and fell when trying to step from one buffer to the other.

A notice is inserted in the Appendix to the working time table, a copy of which I am assured McKie possessed, cautioning men against riding on waggon buffers unnecessarily.

In this case there was no necessity for McKie to ride on the waggon, especially in such a manner, and therefore the accident must be attributed to the deceased man's lack of caution.

The practice is, I am afraid, far too common, and it is desirable that the Company should use every endeavour to put a stop to such a dangerous custom.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GLASGOW AND SOUTH WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

25th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 8th August, the result of my inquiry into the causes of the accident which occurred on the 24th July to William McKie, at Dumfries, on the Glasgow and South Western Railway.

McKie was working as fireman with the 4.25 a.m. passenger train, Carlisle to Glasgow. On entering Dumfries Station, where the engine had to obtain a supply of water, he went to the back of the tender to be in readiness to receive the water column hose. McKie, however, forgot that an overhead footbridge crossed the line a short distance south of the water column with the result that he was knocked down by coming in contact with it and injured.

An instruction is issued by the locomotive engineer, cautioning enginemmen against going to the back of tenders, unless it is absolutely necessary, while engines are in motion. McKie informs me that he thinks he remembers seeing the instruction, and as it was not necessary for him to take up such a position until the engine had come to rest, the accident must be attributed to his own want of care.

I would draw the Company's attention to the fact that the instruction mentioned was not posted up in the locomotive shed at Dumfries. This omission should be rectified. I am of opinion, however, that such an important notice (which is an amplification of Rule 24A), should be handed to the men concerned, who should acknowledge its receipt, to ensure that each man is in possession of a copy and aware of the caution contained therein.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GLASGOW AND SOUTH WESTERN RAILWAY

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

27th August, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of August 19th, I have held an inquiry into the circumstances attending the accident which occurred on August 8th, at College, on the Glasgow and South Western Railway, whereby foreman surfaceman Archibald Ferguson, and surfaceman Kenneth Chisholm, were injured.

About 7.0 a.m. Ferguson asked yardsman Thomas Copeland, to put two empty waggons into No. 1 road, in St. John's sidings, in order that the surfacemen might load up some old sleepers which were lying in the four-foot way of the down main line. The St. John's sidings are generally used only as exchange sidings and not for loading or unloading purposes. Copeland shunted one empty waggon into the siding about 7.30 a.m. and promised to supply a second one as soon as possible. The first waggon was loaded up by the surfacemen, who then continued their ordinary work on the opposite side of the main lines. About 9.30 a.m. Copeland shunted a second empty waggon into No. 1 road, and the surfacemen at once crossed the main lines and pushed it down towards the loaded waggon. They then commenced to push the loaded waggon further down the siding. Meanwhile Copeland shunted three more waggons into No. 1 road with the result that the empty waggon intended for the sleepers was forced against the loaded one which the surfacemen were pushing towards the buffer stops. Ferguson's shoulder-blade was broken, and surfaceman Kenneth Chisholm was also injured. Copeland states that there was an interval of only about three minutes between the two shunts, and he thought that the surfacemen would not have had time to commence dealing with the second waggon. I consider, however, that he is to blame for not having satisfied himself on this point before making the second shunt. Ferguson, also, is not free from blame, seeing that he placed himself and the rest of his gang in such a dangerous position without informing Copeland of his intention. A reasonable amount of discretion on the part of either Copeland or Ferguson would have prevented the accident.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## GLASGOW, BARRHEAD, AND KILMARNOCK JOINT RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

21st October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 30th September, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 5th September to John Young Currie, at Lugton, on the Glasgow, Barrhead, and Kilmarnock Joint Railway.

Currie was engaged four days prior to the date of the mishap to take up the duties of porter and fireman. He had no previous railway experience. On the occasion in question he was learning the duties of fireman with driver Kerr and fireman Drain working the 2.43 p.m. passenger train from Beith to Lugton. When the train arrived at the latter station Currie left the footplate to disconnect the brake pipes and slacken the screw coupling between the engine and leading coach. After completing this work Currie stepped out on the six-foot side almost immediately in front of the 2.30 p.m. express passenger train from Glasgow, with the result that he was struck by the buffer plate of the engine and instantly killed.

It is stated that efforts were made by fireman Drain to warn Currie of his danger but without avail.

The accident may be attributed to misadventure, but it is to be regretted that driver Kerr, in whose charge the deceased was, did not exercise a closer supervision over Currie's actions seeing that he was so inexperienced.

The slackening of the screw coupling in the manner stated is to enable the coaches to be fly shunted into the sidings so that the engine may be placed at the opposite end for the return trip. The uncoupling is effected by hand as the train is drawn into the siding, the guard standing on the step of the leading coach for this purpose. This operation appears dangerous although fortunately up to the present no mishap has taken place.

Propping and fly shunting are performed daily at Lugton owing to the accommodation being insufficient. Arrangements could be made without much trouble whereby such a dangerous system of working might be avoided, and I would recommend that the Company should consider the matter with a view to effecting the necessary alteration at an early date.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

27th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th July, the result of my inquiry into the circumstances attending the accident which occurred on the 10th July to Matthew Smith at Grimsby Docks on the Great Central Railway.

Smith was employed as a casual labourer by Messrs. Albert and Company, who have a warehouse on the dock premises. About 5 p.m. he was taking a two-wheeled barrow from the warehouse to the fish pontoon. As he was wheeling the barrow round the corner of a building he saw the shunting engine approaching, and endeavoured to draw the barrow clear into the space between the building and the rails, but was unable to do so owing to the presence of some planking. The engine struck the barrow and Smith was somewhat bruised.

The dock lines at this place are laid amongst a large number of warehouses where there is a considerable amount of hand barrow work performed. Smith had been employed in a similar capacity for a long time, and was thoroughly acquainted with the place and the conditions prevailing. I consider that he should have exercised more care in seeing that the road ahead was clear before fouling the rails with his barrow. I therefore attribute the accident to want of caution on the part of Smith.

At present the shunting engines working on these dock lines, which in many cases are led through streets, are not restricted to any speed, nor are they fitted with any appliance to give warning of their approach.

I would recommend that the speed of engines working in this locality should be limited to four miles per hour, and would also suggest that they should be fitted with bells worked from some moving part of the motion, or some similar device to give warning of their proximity.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

6th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 12th September, the result of my inquiry into the circumstances attending the accident which occurred on the 27th August to fireman J. Parkin at Lincoln on the Great Central Railway.

As a light engine was leaving the locomotive sheds for the passenger station, Parkin went to the back of the tender to break and stack the coal. After completing the work, and when Parkin was returning to the foot plate his head came in contact with an overhead foot bridge under which the engine was passing and he was thrown down and severely injured. There was no necessity for Parkin to perform the work and expose himself in such a manner while the engine was in motion, and therefore the accident must be attributed to his own want of caution.

A notice cautioning enginemen against leaving the footplates of engines in motion was issued in 1899. Parkin has been a fireman for six years, and although I am assured that the notice in question is posted at the depôt to which he is attached, yet he informs me that he has never seen it nor did he know of the existence of such an instruction. Parkin was, no doubt, very remiss in failing to acquaint himself with the notice. Still I think the system of issuing such instructions might be improved by placing each man in possession of a copy so that there will be no possibility of their being overlooked, and I would suggest that the Company should adopt this plan.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT CENTRAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

16th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade that, in accordance with the Order of October 8th, I have held an inquiry into the circumstances attending the accident which occurred on September 11th at the Brunswick Locomotive Shed of the Great Central Railway, whereby cleaner James Gough was injured.

About 1 p.m. Gough and another cleaner named Sydney Cornock were cleaning a four-wheels-coupled tender engine (No. 441), which was standing on No. 4 road just outside the shed. Driver Thomas Siddell was asked by the assistant turner to move this engine in order to release another engine which was standing behind it. Siddell states that he shouted "Look out 441!" and opened the whistle when he got on to the engine. No warning however was heard by the cleaners, and when Siddell put the engine into forward gear, Gough, who was cleaning the links was squeezed across the chest between the link motion and the bogie rod. However, he did not leave duty till September 13th, and did not report the accident until September 25th.

I consider that the accident was due to the fact that Siddell failed to satisfy himself that all was clear before preparing to move the engine. If he had looked round the engine before getting on to the foot plate he would have seen the cleaners at work. However, from the evidence of both Siddell and John Ralph, the assistant engine turner, this necessary precaution is not invariably taken by men moving engines in this shed.

In order to prevent similar accidents in future I consider that the Company should issue definite instructions on the point in question to all concerned.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

15th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of July 29th, I have held an inquiry into the circumstances attending the accident which occurred on July 4th at Cambridge, on the Great Eastern Railway, whereby engine-cleaner Christopher Lander was injured.

About 7.15 a.m. Lander and three other cleaners were cleaning engine No. 463, which was standing in No. 3 road outside the locomotive shed. This engine was coupled to engine No. 773, and acting fireman George Anderson wished to uncouple the engines, in order to facilitate the work of the engine turner. The coupling, however, was taut, and Anderson put engine No. 773 into forward gear, and opened the regulator in order to loosen the coupling. As the engine did not move he reversed the gear, and was about to open the regulator, but the steam which was already in the cylinder caused the engine to move back about a yard. Engine No. 463 was moved a similar distance, and Lander, who was sitting on the connecting rod, was squeezed against the weigh bar shaft, and injured internally. Anderson states that he shouted "Look up on No. 3!" before getting on to the footplate, but the warning was not heard by any of the cleaners, and Anderson took no further steps to satisfy himself that everything was clear. Moreover, he had previously been forbidden by Mr. Mannoch, the district locomotive superintendent, to move any engines in steam, and he must be held responsible for the accident.

Although Anderson fully admitted his responsibility in this case, I am not satisfied that proper and sufficient precautions are taken at this shed for the protection of cleaners and others similarly employed. The notice prohibiting unauthorised persons from moving engines in steam was not posted up in the shed at the time of my visit, having been temporarily mislaid, and it is a significant fact that the district locomotive superintendent and the shed foreman did not agree as to the exact meaning of that notice.

I consider that it would be advisable to issue definite written or printed instructions to the effect that turners and other authorised persons must satisfy themselves that all is clear before moving engines in or about the shed. The limited accommodation in the shed at Cambridge renders it especially necessary that every possible precaution should be taken.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

15th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of July 29th, I have held an inquiry into the circumstances attending the accident which occurred on July 11th at Ardsley, on the Great Northern Railway, whereby platelayer William Shaw was injured.

About 7.45 a.m. Shaw was engaged in cleaning up the permanent way at the entrance to the West Yorkshire yard. While he was removing some ashes from the points with his shovel, he was knocked down by the shunting engine, the approach of which he failed to observe. His hand was cut, and his ankle was sprained.

The shunting engine had been working in this part of the yard for some time previously, and had quite recently passed over the points.

If Shaw had exercised a reasonable amount of discretion he would have noticed that shunting operations were in progress, and I attribute the accident to want of caution on his part.

I have, &c.,

J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

#### GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

6th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th August, the result of my inquiry into the circumstances attending the accident which occurred on the 24th July to R. Wing, a fireman in

the service of the Great Eastern Railway Company, at Spalding, on the Great Northern Railway.

Wing was working as fireman with the 1.50 a.m. express goods train, Doncaster to Whitemoor. When approaching Spalding he was engaged trimming the coal in the bunker, and as the engine was stopping he climbed to the back of the tender to get one of the fireirons. While Wing was in this position his body came in contact with an overhead bridge under which the engine was passing, and he was thrown down and slightly injured.

Wing has been a fireman for over four years, is thoroughly acquainted with the road, and assures me that this is the first time he has placed himself in such a position of danger while the engine has been in motion. He agrees that his action was an infringement of the general warning expressed in Rule 24a, and due to thoughtlessness in this instance.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT NORTHERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.

SIR,

10th October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of September 30th, I have held an inquiry into the circumstances attending the accident which occurred on September 4th, at Ardsley, on the Great Northern Railway, whereby labourer Joseph Heaton was fatally injured.

About 10 p.m. Heaton was instructed by boilersmith Thomas House to examine some boilers which were being washed out. The boilers were not ready for examination and Heaton went with coalman Matthew Lowe to a public-house. Both men returned to the coal stage at the locomotive shed about 11 p.m. and Heaton was seen to leave the coalmen's cabin shortly afterwards. He was not seen again till midnight when he arrived at the other end of the coal stage in a semi-conscious condition. He was suffering from a severe wound in the back of his head but was unable to explain how he met with the accident. He was conveyed to Leeds infirmary where he died on September 6th.

No one witnessed the accident, but from the evidence it appeared that Heaton had been playing some practical jokes with the coalmen's food before leaving the cabin, and I am inclined to think that his injuries were caused by falling from the upper level of the coal stage to the siding below in which some loaded waggons were standing. Some waggons were standing on the upper level close to the door of the coalmen's cabin, and Heaton probably attempted to hide behind these waggons when leaving the cabin, but missed his footing in his anxiety to escape detection. However, in the absence of any direct evidence, I consider that the unfortunate mishap must be attributed to misadventure.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W..

SIR,

21st October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 12th September, the result of my inquiry into the circumstances attending the accident which occurred on the 22nd August to George Garraway, at Melksham, on the Great Western Railway.

Garraway was working as guard with a goods train which arrived at Melksham at 7.50 p.m. During shunting operations it was necessary to tow rope a number of

waggon along the up line by the engine running on the down line. A steel wire rope 57 feet in length was used to perform the operation. As the waggon was being drawn the hook slipped from the hole in the sole bar of the truck to which it was attached and struck Garraway, who was standing in the six-foot way, with the result that he was somewhat bruised.

The slipping of the hook was apparently due to the fact that it had not sufficient hold.

The accident is one which may be expected when tow roping has to be resorted to.

I understand that the Company have under consideration a scheme for providing additional accommodation at this place whereby the necessity for tow roping will be avoided.

As at present the practice is of daily occurrence, I would recommend that the necessary alterations should be agreed upon and the work commenced without delay.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

6th October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of September 24th, I have held an inquiry into the circumstances attending the accident which occurred on August 26th at Barrs Court Station, Hereford, on the Great Western Railway, whereby fireman Alfred J. Jones was injured.

Jones was fireman on the 8.20 a.m. passenger train from Hereford to Oxford. While the train was standing at the up platform Jones proceeded to attend to the regulator lubricator, which is placed on the top of the dome. It was necessary for the engine to go ahead in order to pick up a saloon, and Edward Unitt, the driver, called out to warn Jones. Jones, however, remained on the top of the boiler, and the back of his head came into contact with the footbridge at the north end of the station, and was cut.

The lubricator ought to have been filled and adjusted before the engine left the shed, and Jones must be held responsible for unnecessarily placing himself in such a dangerous position. Driver Unitt is also to blame for starting his engine while Jones was in that position.

In order to prevent further accidents of this nature I consider that it would be advisable for the Company to issue specific instructions forbidding enginemmen and firemen to remain in such dangerous positions on engines which are in motion.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

6th October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of September 24th, I have held an inquiry into the circumstances attending the accident which occurred on August 29th, at the Morpeth Dock of the Mersey Docks and Harbour Board, whereby carman John Wharton was injured.

About 3.15 p.m. Wharton, who is in the service of the Great Western Railway, was in charge of a loaded lurry from the dock warehouse to the town. Owing to a portion of No. 7 bridge being temporarily closed for repairs it was necessary for the lurry to be taken across two lines of rails before reaching the bridge.



While the lurry was crossing the down line it was struck in the rear by a Great Western shunting engine, and Wharton fell to the ground, sustaining injuries to his head and one of his legs.

Wharton appears to have turned his lurry suddenly across the lines while the engine was approaching, and I attribute the accident to want of caution on his part.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
6th November, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 14th October, the result of my inquiry into the circumstances attending the accident which occurred on the 25th September to William Webb at Reading (Locomotive Yard), on the Great Western Railway.

A train of 11 loaded ballast waggons had been placed in a short siding near the Coal Stage. As soon as the waggons had been brought to rest, Webb, with a number of other labourers, commenced to let down the side doors preparatory to discharging the ballast. After doing so, and when Webb was in the act of climbing on to the truck with his right hand resting on the buffer head, the waggons were closed up, and his fingers were crushed between the buffers.

Foreman Frederick Sumbler, who was in charge of the gang to which Webb was attached, requested assistant guard G. W. Clifford to instruct the driver to set back, so that the train might be divided at the sixth waggon. Clifford states that he gave a shout before signalling to the driver, but it was not heard by Webb or the men working with him, and as Clifford was on the opposite side of the train he had no assurance that his warning had been heard, or that the men were clear. He is therefore responsible for the accident, which was due to his failure to give proper warning in accordance with Rule 112a. I also consider that Sumbler should have exercised more care to see that his men did not commence work until the shunting operations were completed.

Sumbler is attached to the Locomotive Department as a platelayer in charge of a gang of twelve men who perform outside work at engine sheds. I find he is not in possession of a Rule Book, the excuse being that he is engaged as a workshop employee. Seeing that his work is platelaying and the removal of ashes and the discharge of ballast in loco yards, I consider that he should be supplied with one, and also the men in his gang, so that they may be personally acquainted with the precautions necessary when performing such work.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### GREAT WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
27th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 14th October, the result of my inquiry into the circumstances attending the accident which occurred on the 26th September to J. T. Tiller at Saltash on the Great Western Railway.

Tiller was working as fireman with the 7.30 p.m. goods train from Penzance to Plymouth. On approaching Saltash at 2.55 a.m. it was necessary to exchange the staffs.

Tiller, however, failed to place the staff which had to be given up, on the elbow of the setting down post, and slipped when attempting to pick up the staff which had to be taken forward, with the result that he fell from the footplate and was badly injured.

Staffs are exchanged in the following manner at this place. A steel leather-covered hoop is attached by means of a bayonet joint to the staff. When it has to be given up the fireman is required to hang it on an arm fitted to a post placed some five feet from the rail. When a staff has to be picked up the action is reversed, the staff being held outwards by a spring controlled socket, and the fireman cranks his arm to engage the hoop. After dark, lamps are focussed on the point of the setting down arm and on the hoop of the staff to be picked up. The speed must not exceed 15 miles per hour when an exchange has to be effected.

The method employed appears to be superior to the double hand exchange. In this case Tiller failed to locate the point of the setting down arm, although the lamp was lit and the speed did not exceed 10 miles per hour, possibly owing to the fact that the white metal knob fitted to the end of the arm was broken off. I understand that this knob has been missing for the last two months.

The mishap may be classed as accidental. At the same time it appears desirable that more care should be taken to keep the appliance intact.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### HIGHLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

21st October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 8th October, the result of my inquiry into the circumstances attending the accident which occurred on the 16th September to Charles Michie between Newtonmore and Inchlea on the Highland Railway.

During the running of the 3.15 p.m. passenger train from Inverness and when the train was about two-and-a-half miles South of Newtonmore, one of the sight feed lubricator glasses on the engine burst. Michie who was acting as driver, shut off the live steam, and closed the stop cock on the lubricator with the intention of renewing the glass. As, however, there was still an escape of steam passing the stop cock, Michie decided to leave the footplate and go to the front of the engine to close the discharge at the steam chest. After doing so and when returning to the footplate, Michie slipped on the framing and fell to the ballast and was injured.

There was no urgent necessity for Michie to expose himself in such a manner while the engine was in motion, and as he disobeyed an order prohibiting such a practice he must bear the entire responsibility for the mishap.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

11th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th July, the result of my inquiry into the causes of the accident which occurred on the 4th July to Thomas Moore at Walkden on the Lancashire and Yorkshire Railway.

Moore was working as fireman with the 2.30 p.m. mineral train, Werneth to Atherton. On approaching Walkden, where some shunting had to be performed, he decided to oil the glands. To do so he left the footplate without his driver's knowledge or consent to go to the front of the engine while it was still running. In stooping down to perform the work, Moore's foot slipped and was crushed between the small end of the connecting rod and the motion plate.

Moore has acted as fireman for the past nine months and is in possession of a rule book. He informs me that his action in this case was a violation of Rule 24a as he unnecessarily exposed himself to danger. Such being the case he must bear the entire responsibility for the occurrence.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

15th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of July 29th, I have held an inquiry into the circumstances attending the accident which occurred on July 6th, at Normanton, on the Lancashire and Yorkshire Railway, whereby goods guard Joseph Bates was injured.

Bates was guard of a special cattle train from Liverpool to Normanton. As the train was approaching the North Yard at Normanton about 10.40 a.m., he was instructed by the shunter in charge to detach his brake van, in order that it might be left on the down independent line while the waggons were being placed in the yard. Bates stood on the footboard at the front end of the brake, and attempted to release the coupling with his left foot, but the buffers were closed up suddenly and his foot was crushed between the drawbar hooks.

This method of uncoupling brake vans appears to be a common operation both at Normanton and at other places on this Company's system, and I do not think that Bates can be blamed for adopting it in this case. I consider that the operation is unnecessarily dangerous, and it is to be hoped that the Company will issue and enforce instructions for its discontinuance.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

1st September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of 12th August, the result of my inquiry into the circumstances attending the accident which occurred on the 18th July, to brake-oiler George Morgan, at Exchange Station, Liverpool, on the Lancashire and Yorkshire Railway.

A train of coaches had been placed on the loop line leading from No. 1 siding and left in that position while the engine proceeded into No. 2 road to attach a milk truck and bogie brake van which were afterwards drawn out of this road and backed down No. 1 siding to pick up a bogie coach. After the coach had been attached shunter Davies signalled driver Bibbey ahead to run clear of the points leading back into No. 2 road. Bibbey, however, misjudged the distance and collided with the stationary coaches moving them forward a short distance. Morgan was engaged cleaning and oiling the brake gear under one of the vehicles, and as they were moved forward he was struck by a truss-bar and somewhat injured.

A red flag had been placed by Morgan at the end of the train farthest from the engine, but the evidence is conflicting as to whether the same precaution had been taken on the carriage which the engine was approaching. However, this is immaterial, as driver Bibbey was aware that similar work was performed by the carriage staff every morning at this place, and whether a red flag was exposed or not, he should have exercised more caution in approaching the carriages to avoid colliding with them.

The loop line leading from No. 1 siding is not the most desirable position in which to place carriages requiring such attention, but I understand that arrangements will be made to perform this work while the carriages are standing on the platform road in future.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

25th August, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 12th August, the result of my inquiry into the causes of the fatal accident which occurred on the 19th July, to James R. Shortland, at Brindle Heath Junction, on the Lancashire and Yorkshire Railway.

The 10.25 p.m. goods train, Bolton to Middleton, arrived at Brindle Heath Junction at 1.30 a.m., and as some shunting had to be performed the train was backed into No. 10 siding. The engine, with four waggons attached, was uncoupled from the train and run into No. 3 siding for the purpose of picking up six trucks. Guard Davenport who was working with the train walked down between No. 2 and No. 3 sidings to lift the brakes of the waggons which had to be attached before the engine came back against the trucks, and in returning between No. 3 and No. 4 sidings he found Shortland lying in the six-foot way, having evidently been crushed between the buffers as the waggons came together. His injuries were of such a serious nature that he died shortly afterwards.

Shortland was acting as inspector in charge of the sidings, and it is assumed that he walked down No. 3 siding with the object of speaking to Davenport, and failing to find him on one side of the waggons he crossed the four-foot way to the other side in front of the on-coming trucks with results as stated above.

This appears to be a very likely explanation of the occurrence. The accident took place within a few feet of a large four burner gas lamp which was alight at the time, and may I think be attributed to want of caution on the part of the deceased.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

2nd September, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of 20th August, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 4th August, to cleaner Herbert Crosby, at Agecroft engine sheds, Pendleton, on the Lancashire and Yorkshire Railway.

Crosby had been instructed to clean engine 474 standing on No. 4 road. At 7.20 p.m. it was necessary to move the engine, as one standing behind it was required. Cleaner Pugh was acting as assistant to fireman Scarlett who was marshalling the engines.

Pugh informs me that he shouted "Look out 474" as he walked past the engine, and also looked into the motion and again gave warning before any movement was made. He however received no reply, and thinking all was clear he coupled the engines together. Pugh then climbed on to the foot-plate and again called out and sounded the engine whistle. A few minutes after the engine had been drawn away shedman McGhie found Crosby lying in the pit unconscious and badly crushed, his injuries being so severe that he expired shortly afterwards.

It is difficult to arrive at a conclusion as to how the accident occurred, but there can be no doubt that Crosby was working at the engine and failed to hear the warning, with the result that he was crushed by some part of the motion.

I am satisfied that warning was given before any movement took place, therefore the accident must be attributed to misadventure.

Crosby, I am informed, was a sharp active lad and in full possession of all his faculties.

From the evidence which I obtained it would appear that considerable care is taken before moving engines in the locomotive sheds. The Company's representative informed me, however, that there were no instructions in connection with such operations, beyond the advice given by the officer in charge of the shed to the men performing such duties.

This is unusual, as beyond the verbal instructions so given, it is the general custom to post up rules for the guidance of the staff engaged at such work, and I would suggest that this Company should consider the advisability of similar action.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
6th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of September 24th, I have held an inquiry into the circumstances attending the accident which occurred on September 13th, near the Red Bank sidings, at Manchester, on the Lancashire and Yorkshire Railway, whereby porter Donald Watkinson was fatally injured.

About 10.10 p.m. Watkinson arrived with a train of empty coaches at Red Bank carriage sidings, which are about three quarters of a mile from Victoria Station. At 11 p.m. he was found lying between the up fast and the down slow lines, a short distance from the up home signal of the "Footbridge" signal-box. He was then lying clear of both lines, but he had apparently been struck by a passing train, having received internal injuries, which proved fatal shortly afterwards.

There is no direct evidence as to how the accident occurred, but I am inclined to think that he was injured in attempting to join an up passenger train which appears to have been checked, but not actually brought to a stand, on the fast line at the home signal about 10.36 p.m. Under the circumstances, I consider that the unfortunate mishap may be attributed to misadventure.

It appears to be a regular practice for train porters to return from Red Bank sidings to Victoria Station by trains which are stopped at this signal. As it is necessary for the men to cross both the up and down slow lines in order to reach the up fast line, I consider that the Company should prohibit such a dangerous practice.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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## LANCASHIRE AND YORKSHIRE RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
3rd November, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of October 15th, I have held an inquiry into the circumstances attending the accident which occurred on September 25th at Hightown, on the Lancashire and Yorkshire Railway, whereby ballastman Joseph Culshaw was injured.

About 11 a.m. the Ormskirk ballast train was standing on the up main line at the east end of Hightown Station. Three waggons loaded with sand were in front of the engine. In order to put these waggons on to the train, the engine was taken into the up siding, and the sand waggons were pushed back to the train by the ballastmen. As the waggons reached the train, Culshaw put on the coupling with his left hand, but his right hand was caught between the buffers and two of his fingers were crushed.

It was no part of Culshaw's duty to perform the coupling operation and the accident was due to his own want of caution.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
22nd October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of October 8th, I have held an inquiry into the circumstances attending the accident which occurred on August 25th at Wolverhampton, on the London and North Western Railway, whereby loader William Sillito was fatally injured.

About 9.30 p.m. Sillito was engaged in sheeting a waggon which was standing on the "back" road, outside the goods shed. While he was standing in the four-foot way pulling down the sheet, another waggon was shunted into the same road by capstanman Savile Smyth. Sillito was caught between the buffers of the waggons and sustained injuries which proved fatal on August 29th.

It is only under exceptional circumstances that waggons are sheeted on the "back" road, as this road is almost continually used for shunting purposes. Sillito, however, failed to inform the capstanman that he was about to commence sheeting, and the accident must be attributed to his neglect in this respect.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
3rd November, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of October 21st, I have held an inquiry into the circumstances attending the accident which occurred on September 24th at London Road Goods Station, Manchester, on the London and North-Western Railway, whereby scalesman Charles Atkins was injured.

About 3 a.m. Atkins was engaged in untying the sheet strings on a waggon standing in what is known as the "top yard run." While he was leaning over the buffer another waggon was shunted into the same road by porter brakesman Herbert Peacock. The waggon at which Atkins was working was moved about two feet, and his left arm was

bruised slightly. About an hour later he discovered that his arm was bleeding from a wound which was apparently the result of the blow, but it has not been ascertained exactly how the wound was caused. Peacock stated that he gave the usual warning (by sounding a horn and shouting the name of the road) before moving the waggons, but this warning was not heard by Atkins.

I am of opinion that the present method of giving warning of the movement of waggons in this part of the warehouse is not satisfactory, and I am not surprised that Atkins failed to hear the warning given in this case. If the Company are unable to arrange for the sheet strings to be untied at a point where the waggons are not liable to be moved during the operation, it is to be hoped that they will direct their attention towards devising some more efficient method of warning.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LONDON AND NORTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

3rd November, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of October 21st, I have held an inquiry into the circumstances attending the accident which occurred on September 24th at the Alexandra Dock Goods Station of the London and North-Western Railway, whereby sheeteer George Fletcher was injured.

About 7.45 p.m. Fletcher was engaged in sheeting a low-sided waggon which was standing on No. 5 road inside the warehouse. Some waggons were being moved on No. 6 road by means of a capstan, and Fletcher states that he stepped into the four-foot way of No. 5 road behind the corner of the low sided waggon, in case the capstan hook should fly off the waggon in No. 6 road. While he was in that position a waggon was shunted into No. 5 road by capstanman George Rourke. This waggon struck a meat van which was propelled towards Fletcher, and he was squeezed across the chest between the buffers.

Fletcher admitted that he heard the warning given before the movement was made, but he neglected to move into a position of safety, and the accident must be attributed to his own want of caution.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### LONDON AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

9th August, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th July, the result of my inquiry into the causes of the accident which occurred on the 10th July to Checker C. Gaston, at Poole, on the London and South-Western Railway.

Two furniture van waggons had been loaded and placed in the loop siding behind twelve other waggons. The trucks were not coupled together and there was a space of a few feet between them. At 4.45 p.m. shunter Matcham asked Gaston to assist him to rope the vans to the waggons, and when about to perform the work while Gaston was passing between the trucks they were closed together and he was caught between the buffers and crushed.

Driver Bartlett, who was in charge of the shunting pilot, moved the waggons to place his engine in position for oiling purposes. He assures me that he looked back to see if

any men were working about the waggons, and seeing no one and also knowing that it was the shunters' meal hour, when the men were not engaged in the yard, he concluded it was quite safe to move them.

Matcham, who was Yardsman in charge, informs me that he looked along the waggons but did not see the engine, and knowing that shunting was not generally performed between 4 and 5 o'clock he thought that the work could be undertaken without risk.

Matcham displayed a want of care in failing to assure himself that no movement of the waggons would be likely to take place before commencing the work, and Bartlett was not sufficiently careful in assuring himself that it was safe to move the trucks. However, the work should have been performed at the loading dock or in a siding devoted to such a purpose and not on an open loop siding. No doubt more care will be taken to see that this system is adopted in future.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

8th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th August, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 12th August to John Ameris, at Twickenham, on the London and South-Western Railway.

Ameris was employed as point cleaner and signal lighter, and had been engaged in this capacity at Twickenham for about three months. His age was 16 years. At 7.40 a.m. on the morning in question, a train of carriages was pushed up the long siding to clear the down siding points for outlet to the main line. After the carriages had passed over the points it was found that Ameris had been run over and instantaneously killed when he was evidently cleaning the switch.

The carriages are shunted in a similar manner and at the same time every morning. I understand that Ameris was aware of this, and that he was also fully acquainted with the working of the yard. Shunter Dollery assures me that he looked down the siding before signalling to the driver to come back, and saw no one working at the points at that time. From the position in which the tools used by Ameris were found, it is assumed that he was working with his back towards the approaching train.

I am advised that he had been cautioned on several occasions against performing the work in such a manner, the last time being some two weeks before the accident occurred. It would therefore appear that Ameris displayed a want of caution. At the same time I think that the mishap may be attributed to misadventure.

The deceased was, I consider, rather young to perform such work, and I would recommend that the duty of cleaning points at busy parts of the line, similar to the place under notice, should be delegated to more experienced men.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON AND SOUTH-WESTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

1st October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 12th September, the result of my inquiry into the circumstances attending the accident which occurred on the 24th August to Arthur Rose, at Guildford, on the London and South-Western Railway.



Rose was working as fireman with the 6 p.m. passenger train Portsmouth to Waterloo. On arrival at Guildford, where the train was booked to stop, he proceeded to place the engine head lamps in position. After returning to the footplate Rose was in the act of replacing one of the lamps which he did not require, in the tool box at the front of the tender, when his foot slipped on the sand-box on which he was standing, and overbalancing, he fell to the ballast and was somewhat injured.

The mishap appears to have been accidental.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON, BRIGHTON AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

20th October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 17th September, the result of my inquiry into the circumstances attending the accident which occurred on the 1st September to Alfred W. Johnson at Grosvenor Road, on the London, Brighton and South Coast Railway.

Johnson was working as fireman with the 7.40 a.m. passenger train from Victoria. When approaching Grosvenor Road Station he climbed on to the bunker to free the coal which was choking the shoot. While Johnson was in this position he failed to notice an earth wire led across the line from the signal cabin to the platform roof, with the result that he came in contact with it and was thrown down and badly bruised.

The height of the wire was between 15 and 16 feet above rail level. It had been placed in this position about six weeks prior to the date of the accident. Johnson was not aware of its existence, and thinking that there was a considerable distance clear of overbridges, he assumed that it would be quite safe to perform the work. An Order is in force prohibiting engine men from leaving the footplates of engines in motion. Johnson was acquainted with this instruction, and as there was no necessity for such exposure on his part, he alone is to blame for the mishap.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## LONDON, BRIGHTON AND SOUTH COAST RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

20th October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 24th September, the result of my inquiry into the circumstances attending the accident which occurred on the 9th September to A. J. Henderson, at Croydon, on the London, Brighton and South Coast Railway.

Henderson is a private carting contractor. At 4 p.m., while he was engaged in unloading some goods from a van standing in No. 2 siding, the waggon was moved slightly and Henderson was thrown down and injured.

The movement of the van appears to have been caused by an engine and brake coming back rather sharply against the waggons standing in front of the van.

No warning was given by head shunter Thomas Luxon, who was in charge of the operation, before bringing the engine and brake-van into the siding. He was well aware that this road was used for loading and unloading purposes, and that there was a likelihood that the waggons might be moved. Luxon must therefore bear the entire responsibility for the mishap, which was due to his failure to give warning in accordance with Rule 112a.

Henderson states that on several occasions trucks have been moved while he has been engaged in unloading.

This points to a lack of care on the part of the shunting staff in Croydon Goods Yard which no doubt the Company will take steps to remedy.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MANCHESTER SHIP CANAL RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
24th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of August 13th, I have held an inquiry into the circumstances attending the accident which occurred on July 8th in the Mode Wheel Gridiron Sidings on the Manchester Ship Canal Railway, whereby shunter Frederick Crompton was fatally injured.

About 5.30 a.m., Crompton was working with a pilot engine to which he intended to attach certain timber waggons which were standing in No. 5 siding. The engine was standing in No. 7 siding and Crompton went to No. 5 siding in order to release the waggons which were secured by means of a piece of wood which had been placed in front of one of the wheels of the leading waggon. The siding is on a gradient of 1 in 156, and under ordinary circumstances waggons would run down by gravity. No one actually witnessed the accident, but a few minutes after Crompton had left the engine he was found by the fireman lying in the six-foot between No. 5 and No. 4 sidings, his left arm having been badly crushed by the waggon wheels. He died in hospital from the effects of amputation. The waggons were moving slowly out of the siding at the time when Crompton was found by the fireman.

From the evidence I am inclined to think that the waggons were rather stiff and failed to run out of the siding when the piece of wood was removed from the front wheel. Crompton probably started the waggons by using the piece of wood as a lever against the spokes of a wheel, but owing to the wood breaking he fell with his left arm on the rail and the waggon wheel passed over it.

I consider that the accident may be attributed to misadventure.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

6th October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that in accordance with the Order of August 13th, I have held an inquiry into the circumstances attending the accident which occurred on July 25th at Derby, on the Midland Railway, whereby porter guard Appollos P. D. Catton was fatally injured.

About 7.45 p.m., Catton was assisting shunter John Rallings to make up a train of empty coaches in the Park carriage sidings. The shunting engine was attached to four vehicles, the last one being a corridor dining car. As these vehicles were being set back on to another dining car which was standing on the "back" road, Catton went between the cars in order to couple them together. Rallings signalled to the driver to stop as soon as he realised Catton's intention, but there was not sufficient time to prevent the accident, and Catton's head was crushed between the corridor gangways of the cars.

A notice was issued in August 1899 prohibiting couplers from standing between corridor vehicles in motion. Although I could not obtain any direct evidence on this point it is probable that Catton was aware of this notice and the accident must be attributed to want of caution on his part.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

6th October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 24th September, the result of my inquiry into the circumstances attending the fatal accident which occurred on the 9th September to Hubert Pearce, at Poplar, on the Midland Railway.

Pearce was employed as a waggon repairer. On the morning in question he accompanied labourer Barrett from Kentish Town to Poplar goods sidings to effect some repairs to a private owner's waggon standing at the latter place. When the men arrived at Poplar they were instructed by examiner Webb, who is in charge of the waggon repairing in the yard, to take some brake and draw-gear material from a waggon standing in No. 2 siding and place it in the defective waggon which was standing behind five others in No. 3 road. Webb then left them for another part of the yard.

After Barrett and Pearce had removed the material they proceeded to push the waggon forward so that the draw-bar might be placed in position and the brake gear fixed, Pearce being on one side of the waggon and Barrett on the other. Just as they got the truck into position, and when Pearce was crossing between the buffers of the defective waggon and those standing a few feet in the rear, some other waggons were shunted into the siding and closing all the waggons up, Pearce was caught and crushed between the buffers with fatal results.

Red flags were not placed on the leading vehicle in front of the defective waggon nor was the head shunter advised in accordance with instructions.

Both men possessed a copy of these instructions and Barrett, who was the senior, assures me that before the work was actually commenced, the red flags would have been placed in position. Knowing that this precaution had not been taken and that there was every likelihood that waggons would be shunted into the siding, Pearce undoubtedly displayed a want of caution in crossing between the buffers, and the accident must be attributed to this cause.

Webb, who has been blamed for failing to make proper arrangements for the protection of the men, informs me that he did not intend the work to be commenced until the waggon was under the crane and properly protected. Barrett did not understand this and it is to be regretted that Webb's instructions were not more explicit. However, it is only fair to note that each waggon repairer is expected to take steps to provide for his own safety, and therefore it seems unfair that Webb should bear the onus of responsibility.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### MIDLAND RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

SIR,

22nd October, 1902.

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of October 8th, I have held an inquiry into the circumstances attending the accident which occurred on September 21st, at Hunslet, on the Midland Railway, whereby ganger John Clarke was fatally injured.

At about 7.15 a.m. Clarke was engaged in oiling the points in the down shunting sidings. A train was being marshalled in the sidings, and while Clarke was oiling a pair of points, he was knocked down by a covered salt waggon, which was being drawn over the points by a horse. The horse driver, Thomas Dennis, was on the opposite side of the waggon and did not see Clarke. The waggon wheels passed over Clarke's legs, causing injuries which proved fatal shortly afterwards.

Clarke must have been aware that shunting operations were in progress, and the accident can only be attributed to his own want of caution.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

29th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of August 19th, I have held an inquiry into the circumstances attending the accident which occurred on July 25th, on the Tranent branch of the North British Railway, whereby goods guard Alexander Bissett was injured.

Tranent Goods Station is connected with the main line by means of a single line branch from Prestonpans, worked on the staff system. About 300 yards from Prestonpans there is a sharp curve, beyond which is a connection with a Colliery siding.

Bissett was second guard of a goods train from Prestonpans to Tranent, consisting of 10 waggons, which was being propelled towards Tranent about 11.20 a.m. and he rode on the leading waggon which was loaded with manure. As the train came round the curve Bissett saw a waggon loaded with bricks standing on the branch line just beyond the Colliery siding points. He signalled to the driver to stop, but there was not sufficient time to stop the train, and it struck the waggon sharply, some of the bricks falling on to Bissett, bruising his face and body. Goods guard George Bold, who had left the waggon of bricks at this point on the previous day, stated that he had frequently left waggons in the same place on previous occasions, and it was admitted by the station master and the district traffic inspector that the practice was not an uncommon one. Neither of the guards of the Tranent train, however, were aware of this practice, which is a most undesirable one, especially having regard to the curvature and gradient of the line, and it is to be hoped that the Company will issue instructions for its discontinuance.

In accordance with special instructions issued by the Company, it is necessary for a guard to ride on the leading vehicle of every train while it is being propelled up the Tranent branch, which is about a mile in length. In order to enable the guards to perform this duty safely, I consider that a brake van or other suitable vehicle should be provided for their use.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

25th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th August, the result of my inquiry into the circumstances attending the accident which occurred on the 14th August to James Campbell, at Sighthill, Glasgow, on the North British Railway.

Campbell is employed as a porter in the goods shed. On the morning in question he was engaged tying sheet strings, with his right foot resting on the buffer spindle of a waggon standing in No. 3 road. While he was in this position a truck was shunted into the shed and coming in contact with the stationary waggons closed them up, with the result that Campbell's foot was crushed between the buffer head and socket.

Shunter David Thompson was responsible for shunting the truck into No. 3 road. He gave no warning to the men working inside the shed before doing so for the reason that he did not intend the truck to run so far. He omitted to follow the waggon to apply the brake as instructed in Rule 184, and to this failure on his part the accident must be attributed.

The Assistant Secretary,  
Railway Department, Board of Trade.

I have, &c.,  
JOHN P. S. MAIN.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

25th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th August, the result of my inquiry into the circumstances attending the accident which occurred on the 19th August to cleaner James Marlin, at Cowlairs, on the North British Railway.

Marlin, who is in the service of the Glasgow and South-Western Railway Company, was acting as fireman with driver James Lindsay when working some exchange traffic from St. Enoch to Cowlairs. On arrival at the latter station the vehicles had to be placed in the down loop siding. As the train had been brought to rest over the points leading to this siding it was necessary to draw it back a short distance so that the road might be set. When the points had been cleared Marlin left the footplate without Lindsay's knowledge and went between the engine and the first horse box to uncouple, but as he was unable to disconnect the brake pipe he came out again, and attempted to regain the footplate just as the engine was started. Marlin, however, slipped on the foot step, and falling his right foot was run over by the leading tender wheel. Lindsay was receiving the necessary hand signals from the platform on the opposite side, his whole attention being given to the shunter in charge, hence his failure to notice Marlin's action.

Marlin had been in the service of the Glasgow and South-Western Railway Company for three months, but had previously been employed as cleaner for six months with the North British Railway.

I understand that he had only acted as fireman on eighteen occasions prior to the accident, and he was, therefore, inexperienced. The mishap, however, may be attributed to misadventure.

Lindsay had only been engaged driving for two months, and was also to a certain extent new to the work.

I consider it most desirable, when, owing to shortness of staff it is necessary to employ inexperienced cleaners as firemen that they should be placed with experienced drivers, and I would suggest that this system should be adopted as far as possible by the Company in future.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH BRITISH RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

14th November, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 2nd September, the result of my inquiry into the cir-

circumstances attending the fatal accident which occurred on the 22nd August to Thomas Ewing, in St. Margaret's Locomotive Shed, Edinburgh, on the North British Railway.

The engine shed in which the accident occurred is a circular building with a turntable in the centre, the engines being stabled on lines radiating from this turntable. The shed is an old one, and the accommodation is very limited. The turntable is 42 ft. in diameter, and is operated by pushing two handles (one at either end) which project a few feet beyond the edge of the table pit. It is understood that only drivers and firemen are authorised to work the table. Ewing was an engine kindler, but had previously been employed as a driver.

Boiler washer William Walker desired to have a dead engine moved from No. 3 bay and placed in No. 7 bay for washing-out purposes, and at 7.45 p.m. he requested the night foreman, David Marshall, in the presence of Ewing, to send someone to perform the work. Walker states that Marshall instructed Ewing to do so, but Marshall denies this. However, Ewing proceeded to make the movement, and Walker assisted. The engine was drawn on to the table by another engine, and when both were in position the men commenced to turn the table, Ewing *pulling* at one of the handles. The table swung past the catch for No. 7 bay, and Ewing, failing to notice the close proximity of another engine which had been levered forward on the next road, was crushed between the engine on the table and the engine in the bay with fatal results.

The mishap may be classed as accidental. The deceased man, however, displayed a want of care by pulling the bar instead of pushing, as by adopting the latter method he would have clearly seen his danger and been able to avoid the other engine without difficulty.

The evidence is conflicting as regards the instructions given by Marshall. Still, this does not signify, as I am satisfied that Ewing had been accustomed to undertake the same work previously, and I have every reason to think that he was fully qualified to do so.

Owing to the limited space which exists, and the consequent danger of marshalling engines in this shed by the use of a turntable, I would suggest that some other means should be supplied for operating the table, such as friction gearing worked from the turntable platform, so that the projecting handles may be dispensed with, and also that instructions should be issued that only one engine should be allowed on the table when turning.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

18th August, 1902

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 8th August, the result of my inquiry into the causes of the accident which occurred on the 18th July, to fireman H. Gowdy, at Monkwearmouth, on the North-Eastern Railway.

During shunting operations in the goods yard driver Hardy found that his view of the shunter was likely to be obstructed by a lump of coal on the bunker of the engine and he told his fireman Gowdy to go round and break it. Gowdy accordingly went on to the top of the bunker and stooped to clear an overbridge under which the engine was passing, but failing to recollect the position of the loading gauge which spans the shunting neck a few yards beyond the bridge, his body came in contact with it as he rose up, and he was thrown from the engine and severely injured.

The coal should have been properly stacked before the engine left the loco. shed, and Hardy informs me that he instructed Gowdy to remove the lump in question at that time, but he failed to do so. However, Hardy admits that he was to blame for requesting his fireman to place himself in such a dangerous position while the engine was in motion, and such being the case he must to a great extent bear the responsibility for the accident.

I understand that this Company do not specially draw the attention of enginemmen to the danger of placing themselves in exposed positions on engines in motion. The issue of such instructions has been adopted on other systems, and I would recommend that this Company should consider the advisability of similar action.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
1st September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 20th August, the result of my inquiry into the causes of the accident which occurred on the 30th July to William Spence at Cargo Fleet, on the North-Eastern Railway.

Spence is employed as a waggon examiner, and on the morning in question he commenced to inspect some 60 waggons standing on No. 1 loop. Finding one of the waggon brakes required to be taken up, he climbed on the buffer and withdrew the adjusting pin. He was unable, however, to lift the brake connecting rod, as it was stiff, and he jumped down into the four-foot way to knock it up with his hammer. After doing so, and just as he was raising himself, the waggons in front were closed up, and Spence was caught between the buffers and slightly crushed.

The work was of such a trifling nature that Spence did not consider it necessary to take the precaution of placing flags on the leading waggons at either end of the loop. The loop is open at both ends, and shunting engines are constantly moving in and out of the sidings. Spence was aware of this, and I consider by failing to protect himself in the manner prescribed by the Company before commencing such work he displayed a want of care to which the accident was directly attributable.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
1st September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 20th August, the result of my inquiry into the circumstances attending the accident which occurred on the 8th August to shunter C. Hodgson, at Hull (Craven Street sidings), on the North-Eastern Railway.

At 3.10 p.m. Hodgson gave instructions for the shunting engine to be brought back on the Shunting Neck for the purpose of propping 13 waggons out of the adjacent siding. To perform the operation he obtained a pit prop and placed it between the third waggon and the runner truck attached to the engine. The waggons were propelled for a distance of from 30 to 40 yards when the prop split, and the two portions striking Hodgson, who was holding it in position, he was knocked down, and the trailing waggon, passed over his legs, rendering subsequent amputation necessary.

The prop in question was a piece of timber 6 feet 6 inches long, which Hodgson had picked up in the yard, and was unprotected by ferrules at the ends, therefore its failure in the manner stated is not surprising.

Hodgson is an experienced shunter, and must have known the danger of using such a substitute instead of the authorised appliance, therefore the accident must be attributed to his own want of caution.

I am advised that propping is only performed at this place when the sidings are blocked with traffic, and that it does not occur once a month. I also understand that the Company are remodelling the yard in connection with some extensive alterations, which, when completed, will permit of the withdrawal of such an appliance. In the meantime every effort should be made to keep one road clear for running round purposes when waggons have to be taken from the middle road, so that this dangerous practice may be avoided as much as possible.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
10th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of September 30th, I have held an inquiry into the circumstances attending the accident which occurred on August 18th at Shildon, on the North-Eastern Railway, whereby fireman Charles Scott was injured.

Scott was fireman on a mineral engine which was worked into Shildon with a train, and then had to run to Darlington with a brake-van only. Scott forgot to alter the head lamps before starting, and proceeded to do so while the engine was running on the up independent line at a speed of about six miles an hour. When returning to the footplate he slipped from the framing and fell to the ground. One of his hands was run over by the tender wheels, the fingers being cut off.

Scott admitted that his action was a breach of Rule 24 of the Railway Clearing House Rule Book, and he must therefore take the responsibility for the accident.

Both Scott and his driver, Edward Brayton, stated that the practice of passing along the framing of engines in motion is by no means uncommon on this Company's system. In order to prevent further accidents of a similar nature I consider that the Company should issue and enforce instructions forbidding such a dangerous practice.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.

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### NORTH-EASTERN RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
26th November, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, that, in accordance with the Order of September 30th, I have held an inquiry into the circumstances attending the accident which occurred on September 22nd at Tyne Dock, on the North-Eastern Railway, whereby casual sheetman John Sharpe was injured.

About 9.30 a.m. Sharpe was engaged in sheeting a loaded high side waggon which was standing against a stop-block at the end of No. 4 road near the "Factory" warehouse. While Sharpe was standing in the four-foot way, tying down the end of the sheet, horse-shunter John Leask brought another waggon into the same road. Leask warned Sharpe of the approach of the waggon, but Sharpe did not move until the waggon was close to him, and his body was squeezed between the buffers of the waggons.

I am satisfied that the accident was caused by want of caution on the part of the injured man.

I have, &c.,  
J. H. ARMYTAGE.

The Assistant Secretary,  
Railway Department, Board of Trade.



## NORTH LONDON RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

13th November, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 14th October, the result of my inquiry into the circumstances attending the accident which occurred on the 15th September to Henry Lee, in Devon's Road sidings, on the North London Railway.

Lee, who is employed as a carriage cleaner, joined an empty train in the Devon's Road sidings at 6.30 a.m. to ride with it to South Acton to perform some work at that station. The train was drawn out of the sidings towards the South Bromley up home signal by the shunting engine which was controlled by driver David Leaney. After it had been brought to a stand, two engines were attached to the other end of the train and it was drawn ahead along the departure loop; Leaney with the shunting engine following behind to again enter the carriage sidings. The train, however, was brought to a stand with the trailing brake van over the points leading to the sidings owing to another train being in front. Leaney failed to notice this in time and collided with the van, and Lee, who was riding in the middle compartment of the carriage next the brake van, was somewhat injured by the shock.

It was broad daylight at the time. Leaney was thoroughly acquainted with the working and the power brake on the shunting engine was in good order. I am therefore of opinion that the accident was due to a careless look-out on Leaney's part, and his failure to have his engine under proper control when performing such an operation. His fireman, J. Eisele, is likewise deserving of censure as he also displayed carelessness in failing to keep a proper look-out.

The stock was damaged to a considerable extent by the collision.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

## SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,

11th August, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th July, the result of my inquiry into the causes of the fatal accident which occurred on the 15th July to Alfred Newman, at Dover, on the South-Eastern and Chatham Railway.

Two engines without steam were standing on the straight road adjacent to the main line, and it was necessary to draw them over the points leading to the coal siding. To effect the movement a tow rope was used. The rope was attached to the draw bar hook of the trailing engine and an engine in steam standing on the main line by Newman who was acting shed fireman with driver Durrant.

When the engines had been drawn a few yards and were still in motion, Newman detached the tow rope, but in doing so he either tripped over a point rod, or stumbled and fell with his right leg across the rail, and the leading tender wheel passed over it, his injuries being of such a severe nature that he expired shortly afterwards.

Tow roping is always attended with considerable risk, and at this place the danger of such an operation is greatly increased by the presence of some point-rod boxing which stands about 15 inches high and occupies most of the six-foot space between the main line and the siding.

The work can be performed by other means, and to avoid the recurrence of such an accident, I would recommend that the Company should strictly prohibit the use of a tow rope at this place. The point rod boxing referred to should also be altered so that it will cause less obstruction than at present; the better system being to sink the rodding in troughs and box it up level with the ballast.

The accident may be attributed to misadventure, but seeing that the operation of tow-roping has been performed at this place with the knowledge of the responsible officers, I am of opinion that the Company must bear a certain amount of responsibility for failing to put a stop to such a dangerous practice, and it is desirable that immediate effect should be given to the above recommendations.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
6th September, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 28th August, the result of my inquiry into the circumstances attending the accident which occurred on the 1st August to Thomas Tomsett, at Maidstone West, on the South-Eastern and Chatham Railway.

Tomsett, who is employed as a carpenter, had been engaged casing in some signal wires and point rods. After completing the work the locomotive forman asked him to strengthen some staging which is erected near to the down main line. Tomsett complied with the request and in the course of the work he found it necessary to saw a small piece out of an upright which he was placing under the planking as an extra support. To do so he rested the upright on the outer edge of the staging next the main line, and when he was engaged with the saw he was struck by the engine of a special train, the approach of which he failed to notice, and his head was severely injured.

There was no necessity for Tomsett to expose himself in such a manner by taking up such a dangerous position and he displayed a want of thought by so doing. I consider the accident was solely attributable to the injured man's own want of caution.

I have, &c.,  
JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

### SOUTH-EASTERN AND CHATHAM RAILWAY.

Railway Department, Board of Trade,  
1, Whitehall, London, S.W.,  
27th October, 1902.

SIR,

I HAVE the honour to report, for the information of the Board of Trade, in accordance with the Order of the 17th September, the result of my inquiry into the circumstances attending the fatal accident that occurred on the 12th August, to Thomas Moore, in Bopeep Tunnel, St. Leonards, on the South-Eastern and Chatham Railway.

There are two lines of way through Bopeep Tunnel, but the traffic is worked under special instructions, only one train being allowed in the tunnel at a time. Moore was ganger of the length, and after commencing duty at 6 a.m. he proceeded to walk through the tunnel. Shortly after entering he met a down train and evidently stepped clear on to the up road to avoid it, thinking no doubt that he was quite safe in doing so. An up goods train, however, passed the starting signal at the St. Leonards entrance to the tunnel when it was at danger, and Moore failing to notice its approach was knocked down by it and sustained injuries which proved fatal.

Roots, who was driver of the up train, must to a great extent bear the responsibility for the accident. He failed to locate the starting signal, as it was obscured by smoke and steam, and assumed that it was showing clear, as he was under the impression that the

distant signal situated in the Hastings tunnel was standing in the "off" position. Roots consequently did not slacken speed for the home signal, and finding it also "off," he concluded that the section ahead was clear. Roots was to blame for failing to comply with Rule 74. He passed the starting signal, when he had no assurance as to its position.

Signalman Lewis Davis, who was in charge of the St. Leonards cabin, endeavoured to attract the attention of the enginemen, when he saw that no effort was being made to stop the up train short of the starting signal, but they failed to understand what was required.

This was the first occasion on which Roots had been in charge of a train as driver over this portion of the line. He informs me, however, that he was well acquainted with the signals. The distant signal referred to is a ground disc placed in the six-foot way 305 yards from the St. Leonards end of the Hastings tunnel. It has been known to stick in a semi "off" and "on" position. When Davis heard that the up train had passed through the tunnel he pulled over the distant signal. He states that it appeared to work satisfactorily. The disc was examined later by the signal fitter, who informs me that he found it in good working order.

The up starting signal at St. Leonards is electrically locked from Bopeep, when the down road is occupied, but the up distant signal is quite free.

It has been customary in the past to pull off the up home signal at St. Leonards, when receiving "train on line" from Hastings, although the section ahead may have been blocked.

Taking all the facts into consideration, I am of opinion that although Roots was undoubtedly very much to blame, there were extenuating circumstances which cannot be overlooked.

The situation of the up distant signal is bad, and it is possible it may have stuck on the occasion under notice. It should have been locked with the starting signal. The practice of pulling off the up home signal, although the section ahead was blocked when "train on line" was received from Hastings, was against block regulations and practically a trap for enginemen. And also the dirty condition of both the home and starting signal arms rendered it extremely difficult to locate them in the smoke and steam, which almost invariably clouds the exit from the Hastings tunnel and entrance to the Bopeep tunnel. The signalling at the place is now being altered, the up distant being placed outside the end of the Hastings tunnel, and the up starting signal, with others, carried on a bridge a few feet clear of the entrance to the Bopeep tunnel. Both signals will be locked from Bopeep cabin. The signalmen have also been instructed that they must strictly carry out the block regulations in regard to the home signal. I would suggest, as a further precaution, that instructions should be issued that *all trains must be brought to a stand at the home signal*, when the section ahead is blocked, before being allowed to draw forward to the starting signal at this place, as even under the new conditions the starting signal cannot be seen on many occasions owing to the smoke and steam issuing from the Bopeep tunnel.

I would also recommend that the signal arms should be painted more regularly and kept in a cleaner condition.

I have, &c.,

JOHN P. S. MAIN.

The Assistant Secretary,  
Railway Department, Board of Trade.

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For other Reports of Inquiries into Accidents which have occurred during the nine months, see [Cd. 1232 and Cd. 1308].

## APPENDIX C.

## REPORTS OF SUB-INSPECTORS A. FORD AND J. J. HORNBY ON ACCIDENTS TO RAILWAY SERVANTS AND OTHER PERSONS EMPLOYED ON RAILWAY PREMISES.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
CALEDONIAN... ..	<p>Date of Accident—15th July, 1902. Place at which Accident happened—Greenloaning. Name of Person injured—John McConnachie. Age of Person injured—26. Capacity in which employed—Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—9 hours. Nature of injury—Severe bruises to back and right side.</p> <p>Description of Accident—At Greenloaning there is a short loop line running parallel with the down main line. From the "loop" there is a siding leading to the goods shed, and about 40 yards, northwards there is another connection through which vehicles are run to a group of storage sidings. On the date in question, on arrival of a goods train at about 2.50 p.m., there were 10 carriage trucks to detach in one of the storage sidings, after which the engine had to be taken to the goods shed. It was McConnachie's duty to attend to the hand points, and after he had turned the engine and trucks into the storage sidings instead of going direct to the goods shed points, or otherwise waiting until the engine had run back to the loop, he seems to have sauntered about on the off side until the engine was actually running from the sidings, and then failing to notice the latter approaching he leisurely attempted to cross the "lead" en route to the goods shed line points with the result that he was knocked down between the rails and the engine passed over him.</p> <p>Date of Accident—27th August, 1902. Place at which Accident happened—Motherwell Goods yard. Name of Person killed—Alexander Fraser. Age of Person killed—53. Capacity in which employed—Chief yardman. Number of booked working hours per diem—12. How long on duty at time of Accident—2 hours 40 minutes.</p> <p>Description of Accident—The Motherwell goods yard is situated on the west side of the down main line immediately south of the passenger station. There are seven sidings all of which lead to the No. 2 short loop or shunting neck. The latter runs in front of the shunters' cabin which is placed on an embankment ascended by eight steps. At about 8.40 on the night in question as the shunting engine, with seven waggons in the rear, was running from the sidings to the shunting neck for marshalling purposes the shunter, W. Beattie, called to Fraser who was standing near the cabin that a certain pilot engine (for which Fraser had been waiting) was then running into the up sidings opposite. Hearing that, Fraser ran down the steps referred to above</p>	<p>In this case, as McConnachie fully admits, the accident, which might have proved far more serious, was due to his own want of caution.</p> <p>A. F.</p> <p>Fraser was well acquainted with the yard and there is no doubt he was fully aware that some of the waggons had to be shunted back to the sidings, but from a statement which he made immediately after the mishap it appears that he thought he should have time to cross the shunting neck before the waggons were moved. The accident was due to want of caution on the part of the deceased.</p>	<p>There are no lamps fixed for lighting up the shunting neck in question. The night shunting is heavy and for future safety I recommend that at least one good lamp should be fixed near to the steps leading to the shunters' cabin.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GALEDONIAN— <i>cont.</i>	and attempted to cross the shunting neck just behind the last of the seven waggons mentioned, but just at that moment the waggons were set back with the result that he was knocked down and so injured that he died the next day.		
CHESHIRE LINES ..	<p>Date of Accident—20th August, 1902. Place at which Accident happened—Hartford and Greenbank. Name of Person injured—Joseph Thomas Wright. Age of Person injured—28. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—6½ hours. Nature of injury—Perineum injured.</p> <p>Description of Accident—At about 2.20 a.m. on the morning in question Wright was engaged shunting nine waggons by gravitation into three different sidings. To make the first shunt he had to release the brake of the leading waggon for which purpose it was necessary to take out the pin which held the brake lever down, and to do so he placed one end of his coupling pole under the bottom of the waggon and the other end on the top of the brake lever, and then pressed his weight on the pole to force the brake lever down, and while so engaged the pin fell out, and when it did so the brake lever suddenly flew upwards between his legs with the result that he was so injured as to cause him to be off duty one month.</p> <p>Date of Accident—1st September, 1902. Place at which Accident happened—Warrington. Name of Person killed—Thomas Beckett. Age of Person killed—32. Capacity in which employed—Acting Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—13 hours.</p> <p>Description of Accident—Beckett had been a porter at Warrington for eight years, but for five months previous to the accident, he had been acting as passenger shunter. His working hours were 12 per diem, but owing to there being three special trains due to arrive within the first hour after he should have finished duty, he was kept on to attend to them.</p> <p>The first of the special excursion trains was from Southport, and conveyed portions for the Midland and Great Central lines respectively. The two others, the first for the Midland, and the second for the Great Central lines, were from Liverpool. On arrival of the train from Southport it was shunted into the No. 3 siding, after which the portion for the Midland line was attached to the Midland train (ex Liverpool) and despatched in safety. The Great Central train arrived shortly afterwards, but after having attached the engine to the standing vehicles, and when stepping back to give the driver a signal, Beckett got foul of the parallel up loop line, and failing to notice a light engine that was then approaching, he was knocked down and so injured that he died on the fourth day following.</p>	<p>The mishap was due to Wright disregarding his special instructions by using his coupling pole to release the waggon brake instead of a brake stick for which there was no necessity. At the same time there is no corroborative evidence that the accident happened as stated. No one witnessed it and although Wright worked for 3½ hours afterwards he neither mentioned the matter to those working with him nor reported it to his superior officer before going off duty.</p> <p>J. J. H.</p> <p>The space between the No. 3 siding and up loop line referred to is 6 feet 2 inches.</p> <p>It was dark at the time, so that except for the head light, the approaching light engine would not be seen, and as it was then running with closed regulator, probably the noise from the train engine would prevent the former being heard.</p> <p>There is no doubt that Beckett did not give the attention necessary for his own safety, but at the same time it should be noticed that at the time of the mishap, he had been on duty for 13 hours.</p> <p>That, in my opinion, would prevent him moving as freely or being as watchful as is necessary with men engaged in shunting operations.</p> <p>To my mind, there was no necessity for this. These excursion trains run weekly and better arrangements should have been made to cover the duties of the staff concerned.</p> <p>A. F.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GLASGOW AND SOUTH WESTERN.	<p>Date of Accident—28th July, 1902. Place at which Accident happened—Maybole. Name of Person killed—John Oram. Age of Person killed—60. Capacity in which employed—Ganger of Platelayers. Number of booked working hours per diem—10½. How long on duty at time of Accident—7½ hours. Description of Accident—At about 2.15 p.m. Oram and one of his labourers named James Irvine were working on the down main line about 350 yards north of Maybole Station, when, observing a down passenger train approaching, Irvine moved to the off or west side of the same line, and Oram stepped back and stood between the rails of the up main line for the train to pass. Before the down train had cleared the point in question, an Officers' special train arrived on the up line. At this point, the lines are on a rather sharp curve which unfortunately prevented Oram seeing the special train until it was close to him, but even then, instead of trying to get clear on the east or off side, he sprang into the six-foot space and colliding with the moving carriages of the down passenger train, he rebounded and was struck and killed by the special train.</p>	<p>The mishap was due to the non-observance of the Company's rule 273a. Had Oram stood clear of all running lines as there directed, the accident would not have happened.</p> <p>In this case, I am of opinion that the actions of the engine driver and fireman of the Officers' special train (A. Laverie and A. McDowell) deserve special mention. They were unable to prevent the accident because owing to the curve referred to they were unable to see Oram more than about 90 yards distant, but then so prompt were their efforts that in addition to sounding the engine whistle as a warning, they brought the train to a stand when the saloon had only just cleared the spot where the deceased was lying.</p>	A. F.
GREAT CENTRAL ...	<p>Date of Accident—4th July, 1902. Place at which Accident happened—East Marsh Sidings, Grimsby. Name of Person injured—James Pursglove. Age of Person injured—37. Capacity in which employed—Foreman Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—2½ hours. Nature of Injury—Internal. Description of Accident—At about 10.45 a.m. whilst Pursglove was running along the six-foot space between the shunting line and the No. 1 Marshalling siding for the purpose of giving certain necessary instructions to an engine driver, his right foot was caught under an exposed signal wire which caused him to fall to the ground with the result stated above.</p>	<p>In this case, although in his desire to get to the engine driver, Pursglove, knowing the position of the wire, may not have exercised all the care he might have done, I am of opinion that the primary cause of the mishap was owing to the exposed condition of the signal wire over which he stumbled.</p> <p>The signal wire in question is connected to the siding outlet signal which is fixed on the off or north side of the two marshalling sidings, and is worked from the New Bridge Signal Cabin situated on the opposite side of the main lines.</p> <p>The wire passes under the rails of the different sidings, and being fully exposed, it now forms an obstruction across the paths along which the shunters have to run.</p> <p>For future safety, at my request, the Company's Chief Signal Inspector who attended my Inquiry agreed to at once protect the wire.</p>	A. F.
	<p>Date of Accident—15th July, 1902. Place at which Accident happened—Nottingham Goods Station. Name of Person injured—Robert Thomas Hovell. Age of Person injured—21. Capacity in which employed—Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—5½ hours. Nature of Injury—Right foot run over necessitating its amputation. Description of Accident—On the date in question a telegram was received</p>	<p>From the evidence given I am inclined to think the door was not properly fastened before the waggon left Grimsby, and that it had simply been kept in position by the placing and tying of the sheet. Then when the latter was released—although not removed—the first sudden movement of the waggon caused the door to fall.</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— cont.	<p>from Grimsby asking that the contents of a certain waggon which had been despatched the night previous should be checked. By that time the waggon had arrived at Nottingham and was then standing in the No. 5 Siding. For checking purposes it was only necessary to lift the sheet from one corner of the waggon, after doing which the assistant yard foreman, H. Everard, and the checker, G. Richardson, replaced the sheet, and then seeing the shunters in another part of the yard, Everard gave them instructions to remove the waggon from the No. 5 to the No. 3 Siding, where it was intended to remove certain goods. Before the shunting engine could be taken to the waggon a drayman, named S. Town, not knowing of the altered arrangements, had gone to the waggon to unload other goods for delivery; but just as he had finished untying the sheet strings from the near side of the waggon, at the request of the shunters J. Dobson and R. T. Hovell, he left the waggon, intending to follow it to the No. 3 Siding. After the engine had been attached to the waggon to save walking up the siding, Hovell placed his shunting pole in the brake irons intending to ride on it, and seeing him in that position Dobson gave a starting signal to the engine driver; but as soon as the engine and waggon was set in motion the door of the waggon fell on Hovell, with the result that he was knocked off the pole, and falling with his right leg across the rail it was run over and so injured as to necessitate its amputation.</p> <p>Date of Accident—8th September, 1902. Place at which Accident happened—Hoyland Silkstone Colliery Sidings, New Birdwell. Name of Person injured—George Hazel Murfitt. Age of Person injured—29. Capacity in which employed—Fireman. Number of booked working hours per diem—12. How long on duty at time of Accident—1 hour. Nature of Injury—Left arm run over necessitating its amputation.</p> <p>Description of Accident—Birdwell is situated on the Sheffield and Barnsley branch line, which runs north and south. About a mile-and-a-half north of Birdwell and on the east side of the lines are the High Royd Marahalling Sidings, from which there is a single line running north-east to the Hoyland Colliery. At the latter place there is a lightly constructed over-bridge, which carries a gangway that is used for conveying coal from the pit to a storage ground on the opposite side of the sidings.</p> <p>On the morning in question a train of eleven waggons was worked from the High Royd sidings to the colliery; after the last waggon had cleared the single line branch points, the waggons were, as usual, propelled to a certain point in the empty waggon siding. It was a damp morning, consequently the rails were slippery, which necessitated the use of sand. After opening the sand valve from the footplate of the tank engine No.</p>	<p>To prevent such accidents as the one in question, the Company had previously issued special instructions as follows:—</p> <p>Guards, shunters, and others are warned against using any other shunting poles than those supplied by the Company. They must not ride on the poles or on brake sticks, nor make use of them for any other purpose than that for which they are intended.</p> <p>In placing and riding on his shunting pole in the manner stated, Hovell and Dobson, who gave the starting signal to the engine driver, knowingly acted contrary to those instructions, and I am therefore of opinion that in this case the accident was due to misconduct, for which Hovell and Dobson are equally to blame.</p> <p>A. F.</p> <p>The bridge in question is owned by the Hoyland Colliery Co. Until about a fortnight previous to the accident, the legs of a certain trestle had stood 4 ft. 6 ins. from the empty waggon siding; but about that date that had to be replaced by another, which was fixed immediately in front of the former and about 3 ft. 6 ins. from the rail.</p> <p>Murfitt has been employed at the same work for upwards of three years, but, unfortunately, although he knew the trestle had been renewed he had not noticed its altered position. It is very probable that had the leg of the trestle been fixed in the same place as the old one, or in accordance with what the Board of Trade would have required from the railway companies, the mishap would not have happened. At the same time, had Murfitt taken the necessary precaution for his own safety, he would have seen the danger to which he was exposing himself, and, having failed to do so, he, in my opinion, is to blame for the mishap. Since, and in consequence of this mishap, the trestle has</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT CENTRAL— <i>cont.</i>	418, Murfitt took hold of the hand rails and leaned from the side of the engine to see if the sand was running freely on to the rail, and whilst doing so, momentarily forgetting the position of one of the trestles connected with the over-bridge referred to, the back of his head came into contact with it, and he was knocked off the engine, with the result that his left arm getting foul of the rail was run over.	been set back to a point 5 ft. from the rail, so that no further action seems necessary.  A. F.	
GREAT EASTERN.	Date of Accident—7th August, 1902. Place at which Accident happened—Norwich Thorpe. Name of Person injured—Alfred Beckett. Age of Person injured—46. Capacity in which employed—Horse Shunter. Number of booked working hours per diem—12. How long on duty at time of Accident—14 hours. Nature of Injury—Left ankle sprained. Off duty 8 days. Description of Accident—At about 11.15 p.m. Beckett was walking by the side of his horse's head while it was drawing a waggon from No. 3 to No. 6 road, and when crossing a turntable his left foot slipped off the rail, and, the heel of his boot falling sideways between the rail and the woodwork on the top of the turntable, he fell, with the result stated above.	The mishap was apparently due to misadventure. At the same time Beckett had been on duty 14 hours at the time of the accident, and on the two previous days he had worked 14 hours 10 minutes and 14 hours 45 minutes respectively, with 1½ hours off for meals each day, and, after working for such long periods, he could hardly be so alert and free in his movements as was desirable whilst engaged in horse shunting.  J. J. H.	
GREAT NORTHERN ...	Date of Accident—2nd July, 1902. Place at which Accident happened—Crow Park. Name of Person killed—Wm. Robert Simon Goodacre. Age of Person killed—33. Capacity in which employed—Signalman. Number of booked working hours per diem—Not on duty. Description of Accident—Goodacre had obtained two days' leave for the purpose of visiting a sick relative at Margate. When returning home, he from some cause appears to have missed the last passenger train calling at Crow Park, and so travelled by the 8.45 p.m. from King's Cross to Newark, at which station to avoid walking to Crow Park a distance of about seven miles, Goodacre went to the engine driver, C. Whelton, of a down goods train and asked if he might ride to his home station on the engine. After learning the circumstances, Whelton allowed Goodacre to ride on the engine. When approaching Crow Park, Whelton reduced the speed of the train to about eight miles an hour and would have checked it to a lower speed had not Goodacre got on to the footstep and said he could then alight in safety. It was very dark at the time, and unfortunately when alighting from the engine on to the station platform at about 12.17 a.m., Goodacre in some way stumbled and falling between the train and platform was killed.  Date of Accident—13th August, 1902. Place at which Accident happened—Farringdon Street, London. Name of Person injured—William Hudson. Age of Person injured—59.	In this case as he fully admits, the engine driver, C. Whelton, is to blame for allowing Goodacre to ride on the engine contrary to the Company's Rule 20a, but at the same time I am of opinion that the accident was due to want of caution on the part of the deceased.  A. F.	
		The accident was due to misadventure. At the same time if the sprag Hudson was using had not been so large and	



## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTHERN— cont.	<p>Capacity in which employed—Inspector. Number of booked working hours per diem—10. How long on duty at time of Accident—4½ hours. Nature of Injury—Two fingers of right hand injured.</p> <p>Description of Accident—At about 5.45 p.m. on the day in question two waggons were drawn northwards by capstan along the arrival line against another vehicle which stood against the buffer stops. When the two waggons came in contact with the one at rest they rebounded, and owing to the line being on a falling gradient of about 1 in 100 southwards, they commenced to run back until the capstan rope became taut. This caused such a strain upon the rope that it broke and when it did so the vehicles ran quickly down the incline. Assistant capstanman, George Wagstaff, attempted to stop them by applying the brake of the leading waggon, but finding that he could not do so by that means he lifted a sprag and attempted to place it in front of the leading wheel, but as the rail was wet and greasy the sprag would not take effect. The vehicles continued to gain speed, and Hudson, who was further southwards, saw them coming towards him at about six miles an hour, and for the purpose of bringing them to rest he threw a sprag in between the spokes at the front of the leading wheel which revolved so rapidly that before he could release his hold of the sprag it was forced downwards while passing underneath the horn-plates, and his two fingers were crushed between the sprag and the ground and so injured as to cause him to be off duty 3½ weeks.</p> <p>Date of Accident—8th September, 1902. Place at which Accident happened—Boston. Name of Person injured—Elijah Smith. Age of Person injured—50. Capacity in which employed—Riverside fish stage Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—11½ hours. Nature of Injury—Right shoulder dislocated.</p> <p>Description of Accident—The Riverside shell fish stage is situated about three-fourths of a mile from the passenger station, but as most of the shell fish is sent by passenger trains it is Smith's duty daily to accompany the loaded fish waggons to the station where the fish is invoiced and some of it transhipped into other vehicles. On the date in question, after a certain fish vehicle had been attached to the rear of the 6 p.m. passenger train for Nottingham, Smith hurried to the parcel office to get the way bills. On his return the train was just starting from the platform and being anxious to hand the way bills to the guard, he attempted to jump on the footstep of the moving brake-van, but owing to his foot slipping from the step he fell and keeping his hold of the hand rail he was dragged some distance along the platform with the result stated.</p>	<p>unwieldy there would probably have been sufficient space for his hand between it and the ground.</p> <p>Since this accident the Company have supplied more suitable sprags for use at this place which are at least 2 inches less in diameter in the centre and at both ends so that another accident from a similar cause is not so likely to occur in future.</p> <p>J. J. H</p> <p>In this case there is no doubt Smith's actions were prompted by the best intentions, but as they were contrary to the Company's rules 23c and 24a, he alone must be held responsible for the mishap which fortunately was not far more serious.</p> <p>A. F.</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT NORTH OF SCOTLAND.	<p>Date of Accident—1st July, 1902. Place at which Accident happened—Dyce. Name of Person injured—George Paterson. Age of Person injured—25. Capacity in which employed—Goods porter. Number of booked working hours per diem—13, less 2½ hours for meals. How long on duty at time of Accident—12 hours and 20 minutes. Nature of injury—Lower part of body crushed.</p> <p>Description of Accident—The 4.45 p.m. goods train from Kittybrewster (Aberdeen) to Fraserburgh conveys a tranship van, and on its arrival at Dyce during the time the guard is engaged in delivering and receiving tranships it is the practice for goods porter G. Paterson to attend to the detaching or attaching of vehicles.</p> <p>On the date in question Paterson necessarily detached between the third and fourth waggons from the engine, and then, after signalling to the engine driver to go ahead over the points leading to the goods siding, he got on the brake irons of the second waggon for the purpose of riding into the goods yard, but when the engine and waggons were being set back, failing to notice that he had left the first standing waggon too near the crossing or fouling point, he was crushed between that and the one on which he was riding.</p>	<p>In this case the mishap was due to the non-observance of Rule 184c, for which, as he fully admits, Paterson is alone to blame.</p> <p>A. F.</p>	
GREAT WESTERN ...	<p>Date of Accident—22nd August, 1902. Place at which Accident happened—Tunstall Park. Name of Person injured—Joseph Launchbury. Age of Person injured—56. Capacity in which employed—Platelayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—5½ hours. Nature of Injury—Head and left arm cut, and toes of left foot so crushed as to necessitate their amputation.</p> <p>Description of Accident—Tunstall Park is situated about a mile north of Wolverhampton. Immediately north of the station there is a girderbridge which carries the railway over the Stafford road. On the date in question, as on many previous occasions, Launchbury was sent to remove refuse pieces of paper, straw, &amp;c., from the girders, and to clear any water passage which might have been stopped. At about 11.30 a.m., whilst he was so engaged and in a stooping position, he failed to notice an up goods train approaching, with the result that he was knocked down and run over. Fortunately the rails are laid on stout longitudinal timbers, and so are kept well above the girders, otherwise the mishap must have been far more serious.</p>	<p>At the point of accident the lines are on an S curve, which, when waggons are standing in parallel sidings, as on the date of the mishap, prevents an up train being seen more than 150 yards away.</p> <p>The engine driver, G. Fuller, is said to have sounded his whistle for signals when approaching the station, but as other engines were then working in the adjoining sidings the noise from them prevented Launchbury hearing the approaching train.</p> <p>It is possible that in this case Launchbury may not have exercised all the care he might have done for his own safety, but as the traffic is heavy, and the view is obscured, I certainly think that a lookout man should have been appointed in accordance with Rule 273c, for neglecting which I consider the ganger James Titchmarsh is to blame.</p> <p>A. F.</p>	
	<p>Date of Accident—18th September, 1902. Place at which Accident happened—Shrewsbury. Name of Person injured—Henry Hughes. Age of Person injured—22. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—15 minutes. Nature of Injury—Back bruised.</p> <p>Description of Accident—Hughes booked on duty at 4.30 p.m., and at</p>	<p>The engine sheds at Shrewsbury are situated about half a mile west of the passenger station. The journey along the railway is much shorter than that through the town, and is recognised by the Company as the proper route between those points. Hughes had taken that route, and in walking so</p>	<p>Men of the loco. department are almost constantly walking between the engine shed and station, and for future safety I recommend that, as at many other points, a proper footpath should be provided for their use.</p> <p>A. F.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
GREAT WESTERN— cont.	once left the engine sheds for the passenger station from which he was expected to travel as a passenger to Wellington and there relieve another fireman. In accordance with the general practice when going from the shed to the station, Hughes walked along the railway. In doing so he walked between the rails of the down line, from which position he was able to see and avoid all facing trains. Just before reaching the station he noticed an up train approaching in the rear, but knowing he was well clear of that line he did not change his position. Hughes was then passing the station end of a certain crossover road. The train in question was required at the island platform, consequently immediately before it reached Hughes it was turned from the up to the down line through the crossover road referred to, and failing to notice this Hughes was knocked down (fortunately clear of the rails) and injured as stated above.	as to meet facing trains he took the proper precaution for his safety, and therefore, although it is to be regretted that he did not notice the passenger train was being turned from the up to the down line, I do not think he can be fairly blamed. To my mind the primary cause of the accident is the arrangement that compels the enginemmen to walk over such a busy section of line, which, in my opinion, is a very dangerous practice.	
	<p>Date of Accident—29th September, 1902. Place at which Accident happened—Leamington. Name of Person injured—Bernard Bruce Ray Letts. Age of Person injured—19. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—See below. Nature of Injury—Concussion of the brain, nose and face cut.</p> <p>Description of Accident—The loco. yard is situated on the up side of the main lines, about a quarter of a mile north of the passenger station. The proper route to it is through the goods yard, over the shunting neck, and across the down and up main lines.</p> <p>On the date in question Letts was due on duty at 4 p.m. After entering the goods yard, seeing the down advance signal was at danger, he unwisely concluded that no train or engine could be approaching on that line, and so, after crossing over the neck end of the sidings, although certain waggons in the front siding prevented him getting a view of the down main line, without further precaution he attempted to pass over the down main line, and when doing so, and apparently having his full attention fixed on a passing up train, he was knocked down by a light engine then en route from the station to the loco. yard, and received injuries as stated above.</p>	<p>In this case Letts is certainly to blame for not exercising more care for his own safety, but at the same time I am strongly of opinion that the primary cause of the mishap is the faulty arrangement which compelled him to cross and pass along the lines to get to his work.</p>	<p>The Leamington engine sheds were destroyed by fire in March last. In consequence of this, new sheds are to be provided, and it is to be hoped the Company will consider the advisability of providing a route by which the men working there (nearly fifty) may get to and from their duties with less exposure to danger from passing trains.</p> <p>A. F.</p>
HULL, BARNESLEY, AND WEST RIDING JUNC- TION.	<p>Date of Accident—3rd July, 1902. Place at which Accident happened—Alexandra Dock Sidings, Hull. Name of Person injured—Walter Tom Harrison Leak. Age of Person injured—23. Capacity in which employed—Fireman. Number of booked working hours per diem—13. How long on duty at time of Accident—13½ hours. Nature of Injury—Head bruised.</p> <p>Description of Accident—As the empty waggons leave the coal tips they are run into different adjoin-</p>	<p>From the evidence of the shunter, A. Lazenby, who was responsible for shunting the waggons from the shunting neck, it appears that, seeing the engine and waggons were then moving along the "through" line, and not knowing they were likely to be stopped, he did not expect the detached waggons would overtake the engine.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
HULL, BARNSLEY, AND WEST RIDING JUNCTION— <i>cont.</i>	<p>ing sidings from which they are taken at the opposite end and shunted on to a parallel "through" line, and from there propelled to the marshalling sidings.</p> <p>At about 6.55 on the morning in question there were upwards of sixty empty waggons standing on the "through" line, and the shunting engine on which Leak was working was taken to the rear for the purpose of propelling them to the required position. After the engine and waggons had been put in motion, and as the latter were closing up to others standing ahead, a stop signal was given by the shunter in charge. Before the engine and waggons could again be set in motion other waggons were shunted from the shunting neck to the same (through) line, with the result that the detached waggons collided with the engine, and by the impact Leak, who was looking ahead for a hand-signal from the shunter working with the train, was thrown backwards, and his head striking the cab was injured as previously stated.</p> <p>Date of Accident—September 25th, 1902. Place at which Accident happened—Alexandra Dock, Hull. Name of person injured—Alfred M. Fleming. Age of Person injured—25. Capacity in which employed—Casual waggon roper and chainer. Number of booked working hours per diem—12, with 2 hours off for meals. How long on duty at time of Accident—6 hours. Nature of injury—Right thigh injured.</p> <p>Description of Accident—At about 12 noon Fleming was engaged taking the ropes off some empty bogies which stood on the "weigh line" when an engine, with which shunter W. Lawton and assistant shunter H. Gibson were working, was taken into the temporary line adjoining to remove three waggons. While Gibson was coupling these vehicles they were moved forward until the leading one struck the front bogie which caused the other bogies to run forward, with the result that Fleming's leg was caught between the fifth and sixth bogie and so injured that he was still off duty at the time of the inquiry.</p>	<p>I am satisfied that Lasenby was doing what he then considered best for facilitating the work, but, as he fully admits, before running the waggons unattended on to the "through" line, he ought to have known that it was safe to do so, and having failed to do that he must be held responsible for the mishap.</p> <p>A. F.</p> <p>The bogies in question are used to convey timber which is secured by ropes. The timber is unloaded by men employed by private firms, who, after releasing the ropes at one side throw them anywhere out of the way, leaving the other end tied to the loop fixed on the side of the bogie. In this case the rope had become twisted round the axle and wheel of the sixth bogie, and to release it it was necessary for Fleming to stand in the space between that bogie and the adjoining one with his left leg in the four-foot way and his right leg foul of the buffers of the bogie.</p> <p>The responsibility for the mishap rests with assistant shunter H. Gibson, who, although he fully admits that he, well aware that the line the bogies stood in was used for unloading purposes, neglected to warn Fleming in accordance with Rule 112 (a) or to look whether the bogies were clear of the temporary line before signalling his driver to push the vehicles back on that line.</p> <p>J. J. H.</p>	
LANCASHIRE AND YORKSHIRE.	<p>Date of Accident—7th July, 1902. Place at which Accident happened—Lower Darwen Locomotive Shed. Name of Person injured—Maurice Dean. Age of Person injured—20. Capacity in which employed—Engine Cleaner. Number of booked working hours per diem—12. How long on duty at time of Accident—4½ hours. Nature of Injury—Back injured.</p>	<p>In this case I am of opinion that the accident was due to misadventure.</p> <p>A. F.</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE—cont.	<p>Description of Accident—At the time of the mishap Dean was assisting to coal tank engine No. 81. After a box of coal had been lifted by the crane from the coaling stage, it had to be guided into position over the bunker. To do that, owing to the bunker having then been nearly filled, it was necessary for Dean to stand on the top of the cab, and whilst in the act of tipping the coal his left foot slipped on the sloped part of the cab, and he fell on to the ballast. As he was falling his back came in contact with the footstep of the engine, causing the injury stated.</p> <p>Date of Accident—14th July, 1902. Place at which Accident happened—Bradford. Name of Person injured—William Allen. Age of Person injured—31. Capacity in which employed—Platelayer. Number of booked working hours per diem—11½. How long on duty at time of Accident—3¼ hours. Nature of Injury—Left shoulder badly bruised.</p> <p>Description of Accident—In connection with the lifting of the lines which had taken place on the previous day, Sunday 13th July, it was necessary to remove the boarding from over certain point rods. The refixing of the boards had to be done by a point fitter or blacksmith named Richard Dewhirst, and his mate William Bailey. In consequence of the heavy traffic and position in which they had to work, Dewhirst applied to the length ganger for a man to act as a "look out" in accordance with the Company's rule, but instead of using the man sent (W. Allen) for that purpose, Dewhirst instructed him to assist Bailey to replace certain boarding between the No. 3 and No. 4 lines, and himself undertook the duties of the look out man.</p> <p>At about 9.20 a.m., Allen and Bailey were refixing the boarding referred to, which necessitated Allen getting foul of the No. 3 line, and owing to Dewhirst failing to notice some empty carriages which were being propelled from the platform on that line, Allen was struck and injured by the footstep of the leading vehicle.</p>	<p>Bradford being a terminal station, it is necessary for many of the empty vehicles to be propelled to and from the platforms. To expedite the work it is usual when the carriages are pushed from the platforms for the shunters to ride in the one nearest to the engine so as to be ready to detach the latter after it has cleared the points, and as this was being done on the morning in question, it cannot be said that the train men were keeping a proper look out for warning purposes. At the same time there is no doubt that had Dewhirst properly performed the duties he had undertaken he should have seen the train approaching and warned the men working under his instructions and having failed to do that, he must, as he fully admits, be held to blame for the mishap.</p>	<p>In consequence of the position of the lines and heavy traffic at this station, I recommend that as an extra precaution against accidents to men working on the lines when carriages are being propelled some one should ride in the leading vehicle for the purpose of keeping a look out and giving a warning similar to what would be expected from the enginemen if the train were being drawn.</p> <p>A. F.</p>
	<p>Date of Accident—2nd August, 1902. Place at which Accident happened—Halifax. Name of Person injured—Benjamin Farrar. Age of Person injured—26. Capacity in which employed—Shunter. Number of booked working hours per diem—12, with 1½ hours off for meals. How long on duty at time of Accident—6¼ hours. Nature of Injury—Hips injured.</p> <p>Description of Accident—At about 6.45 p.m., Farrar was working with an engine which was taken into what is known as the "No. 30" or "cattle dock" road to shunt out an empty carriage truck in front of which there were four or five waggon standing. Farrar coupled the engine to the waggons and then coupled them to the carriage truck, but as it stood in the cattle dock, in</p>	<p>The mishap was chiefly due to the waggon in the outer road having been left standing too near the fouling point of No. 30 road contrary to Rule 184 (c). I was unable to ascertain who was responsible for leaving it in that position and it is to be regretted that this matter was not enquired into by the Company's officials immediately after the accident. If the carriage truck had been fitted with a brake which could have been released from either side, the mishap would have been prevented because in that case Farrar would have seen the brake lever down and</p>	<p>Accidents are so frequently happening owing to waggons being left standing too near to the fouling points and the amount of clearance to be given being left to the discretion of the men that for future safety it is desirable that the Company should state definitely what the minimum clearance must be; until this is done I am of the opinion that other accidents from such causes will occur.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE—cont.	<p>order to ascertain whether it was uncoupled at the rear end, he jumped inside it, and after seeing that the cattle truck was uncoupled he signalled the driver ahead intending to ride inside the vehicle, but on looking over the south side (the opposite side to that on which he had been when coupling) he observed that the brake lever was down, and for the purpose of lifting it, he attempted to get out of the vehicle. While doing so, he was caught between the side of it and a waggon standing on the outer road adjoining, and had his hips so injured as to cause him to be off duty 3 weeks.</p> <p>Date of Accident—6th August, 1902. Place at which Accident happened—Low Moor. Name of Person injured—Isaac Ferry. Age of Person injured—26. Capacity in which employed—Coalman. Number of booked working hours per diem—12 with 1½ hours off for meals. How long on duty at time of Accident—1 hour 50 minutes. Nature of injury—Crushed and contused pelvis. Off duty 5 weeks.</p> <p>Description of Accident—At 7.50 p.m. an engine was drawing a waggon on to the weighing machine fixed in the covered coal stage at the west-end. When Ferry thought the waggon was far enough he called "Whoa" to engine driver J. Waranop. The latter did not hear his call, but knowing when the waggon was in position he was in the act of bringing it to rest, when Ferry attempted to pass sideways between the vehicle and the pillar of the weigh cabin, and as the space between the two was not more than 11 inches wide he was injured as stated above.</p>	<p>lifted it when passing. Rule 184 (c) reads as follows :—</p> <p>Waggons (c) Waggons left standing in sidings must be clear of the fouling points of any adjoining Siding or Lines and properly secured to admit of shunting operations being carried on without risk of injury to the staff engaged in conducting them.</p>	
	<p>Date of Accident—11th August, 1902. Place at which Accident happened—Rochdale. Name of Person injured—Thomas Brophy. Age of Person injured—35. Capacity in which employed—Labourer employed by Mr. Rawstron, Machine Broker. Nature of injury—Left arm fractured.</p> <p>Description of Accident—In this case a boiler waggon had been placed in No. 9 road and had been set about 3 yards from the stationary buffers at the south end and about 6 yards from the next vehicle at the opposite end so as to allow the men to get from one side to the other while loading the waggon. While so engaged at 3.15 p.m. three other waggons were shunted into No. 9 road (from the north end), and colliding with 14 waggons pushed them forward against the waggon. Brophy and five other men were loading a boiler into the waggon by means of screw jacks with the result that Brophy's arm was caught between the buffers and so injured that he was still off duty at the time of the inquiry.</p>	<p>Ferry should have waited until the waggon was at rest especially when the place was so full of steam and smoke that he could not see whether the vehicle was moving or not, and the accident must be attributed to his own want of caution.</p> <p>J. J. H.</p>	
	<p>Date of Accident—11th August, 1902. Place at which Accident happened—Geola. Name of Person injured—William Tomlinson. Age of Person injured—27. Capacity in which</p>	<p>Shunter James A. Bangay was attending to the brakes of the three waggons while they ran into No. 9 road and admits that he could have brought them to rest at any moment and that there was no necessity for them to strike the 14 waggons at rest so violently as to move them. He also admits that he neglected to warn Brophy as directed in rule 112(a). Consequently he is responsible for the accident.</p> <p>J. J. H.</p> <p>The accident was chiefly due to Tomlinson having to perform the horse shunting alone as while he was attaching and necessarily</p>	<p>As it is necessary to attach the horse chain as short as possible when the dock line is being filled with waggons, arrangements</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>employed—Horse Shunter. Number of booked working hours per diem—12 with 1½ hours off for meals. How long on duty at time of Accident—5½ hours. Nature of injury—Middle finger of right hand injured.</p> <p>Description of Accident—At about 5.15 a.m. on the morning in question Tomlinson had with his horse to take a waggon from No. 2 shed line to the dock line alongside No. 1 shed. The horse could only travel to the front of the dock and to get all the impetus possible upon the vehicle so that it would run about 24 yards further than the horse could travel. Tomlinson as usual placed the hook of the horse chain behind one of the uprights at the end of the waggon keeping the hook in position with his left hand and with his right hand steadying the chain. While doing so the horse unexpectedly started forward with the result that the middle finger of his right hand was crushed between the horse chain and the corner of the vehicle and so injured that he was off duty 3 weeks.</p> <p>Date of Accident—16th August, 1902. Place at which Accident happened—Dewsbury. Name of Person injured—George Curley. Age of Person injured—21. Capacity in which employed—Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—7½ hours. Nature of Injury—Back bruised and forehead cut.</p> <p>Description of Accident—Dewsbury is a terminal station, and on the arrival of each train the engine must be run round and the vehicles drawn through a cross-over road situated at the west end of the station and then propelled to the departure platform.</p> <p>During the month of August a certain passenger train was due to arrive at 12.34 p.m., and the same engine and vehicles were booked to form an outward train at 12.44. During that time in addition to the movements mentioned above and the dealing with in and out going passengers and luggage the roof lamps had to be lighted.</p> <p>On the date in question as soon as possible after the arrival of this train, porter G. Curley got on the vehicles to light the lamps, but whilst he was so employed the carriages were drawn from the platform, and as he still continued working in that position he failed to notice an overhead foot bridge, with the result that he was struck by the latter and injured.</p> <p>Date of Accident—19th August, 1902. Place at which Accident happened—Aintree. Name of Person injured—John Ashcroft. Age of Person injured—24. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—3 hours. Nature of Injury—Right hand crushed. Off duty 14 days.</p> <p>Description of Accident—The shunting at Aintree is done by gravita-</p>	<p>holding his horse chain in the position mentioned he had no control over his horse.</p> <p>Shunter G. Hayes was in charge of the shunting arrangements. He admits that at the time he gave the starting signal to the engine driver, he knew Curley was on the roof of the carriages, and Curley acknowledges that although the coaches were set in motion without his consent there was no real necessity for him to have continued his work during the movement. The reason they gave for knowingly acting contrary to the Company's rule 24 (a) is that they were simply working according to the usual practice then in force at that station. This of course cannot be accepted as a justifiable reason. They both know that the Company's rule 24 (a) forbids the practice, and as the non-observance of that rule was the cause of the mishap I must hold them equally to blame for it.</p> <p>As soon as the Company's attention was drawn to the dangerous practice referred to it was at once strictly forbidden.</p> <p>A. F.</p> <p>The chief responsibility for this mishap rests with Ashcroft. He admits that he was well aware that the engines regularly pushed the vehicles westwards as in this case until the rear one was over the top of the incline, and consequently he should have allowed the leading vehicle to run well forward before attempting</p>	<p>should be made for some person to assist the horse shunter with the work so that he could remain at his horse's head and control the animal's movements.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>tion. There are three shunting necks into which the vehicles are placed at the east end by engines, but owing to the lines falling eastwards for a considerable distance it is necessary for the engines to remain against the vehicles and push them westwards until the rear one is on the top of the incline. While this is being done one shunter is engaged at the west end in releasing the brakes to permit the vehicles to run towards the sidings. He has also to chalk the number of the sidings on the leading buffers so that the youths working the electric indicators can inform the signalman in No. 2 cabin which siding each shunt is for. In this case Ashcroft released the brake of the most western vehicle, and immediately it was separated from the adjoining vehicle he commenced to chalk the leading buffer of the latter. While he was doing so, owing to the leading waggon not running forward as quickly as he expected, his right hand was caught between the buffers as the rear vehicles were pushed forward, with the result stated above.</p> <p>Date of Accident—20th August, 1902. Place at which Accident happened—Church. Name of Person killed—David Martin. Age of Person killed—26. Capacity in which employed—Goods guard, acting as Inspector. Number of booked working hours per diem—10. How long on duty at time of Accident—2½ hours.</p> <p>Description of Accident—In this case the 8 p.m. goods train from Baxenden to Spring Dale arrived at the exchange sidings, Church, at 12.8 a.m., and during shunting operations there at 12.15 a.m. the deceased, who was superintending the work, was attending to six waggons which were running by gravitation out of No. 2 siding against 17 other waggons at rest in the shunting neck which had just been drawn by the engine out of No. 3 siding adjoining. The deceased thought that the six waggons were running out of No. 2 siding too quickly and he applied the brakes which brought them to rest with the leading vehicle on the crossing. He then instructed shunter John Baines to signal the driver to set the 17 vehicles back so that he might couple the six vehicles to them, and while attempting to do so with his hands owing to the points not having been set for No. 2 siding, the vehicles being set back went into No. 3 siding again, with the result that he was crushed between the buffer of one vehicle and the end of the other when they were joined, and so injured that he died from the effects the same day.</p> <p>Date of Accident—27th August, 1902. Place at which Accident happened—Huncoat. Name of Person injured—Martin Morrison. Age of Person injured—31. Capacity in which employed—Contractor's servant. Nature of Injury.—Several</p>	<p>to chalk the buffer of the adjoining vehicle.</p> <p>J. J. H.</p> <p>Although the mishap appears to have been chiefly due to misadventure, it might have been prevented had the deceased used a coupling pole in accordance with Rule 23 (a), or had the points been set for No. 2 siding before the 17 waggons were set back, and as the deceased was nearest to the points he should, I think, have attended to them.</p> <p>During the reconstruction of the bridge all trains had been run over it at a speed not exceeding 10 miles an hour, and of course a flagman was appointed by the Railway</p>	<p>From the evidence given it is clear that at least some of the men had drifted into an irregular and dangerous system of working contrary to Rule 23 (a), and it is to be hoped that the Company will take steps to ensure more strict observance of this rule in future.</p> <p>J. J. H.</p> <p>For future safety I recommend that in all cases where contractors' men are working on or near to a running line some proper arrangement should be made as to who is to be</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the cause of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>ribs fractured and head and left shoulder out.</p> <p>Description of Accident—Morrison was employed as an asphalter by Messrs. Tate and Gordon, Railway Contractors, Manchester, who for 14 months have been engaged in widening the Lancashire and Yorkshire lines at Huncoat, which included the rebuilding and widening of the Brown Birks under-bridge situated about a quarter of a mile west of Huncoat Station. Morrison entered their service on the 13th August, from which date until the 27th of the same month he was engaged in asphaltting the platforms at Huncoat. On that day he, with two labourers, was sent to asphalt the top of the Brown Birk bridge. At about 3 p.m., after having emptied a bucket of tar on the stones near to the up main line, he turned round for the purpose of returning to the tar boiler, and in trying to avoid one of the labourers who had followed him closely with another bucket, stepped foul of the up main line. At that moment a passenger train was just running on to the bridge, and failing to notice it, he was struck by the engine and so injured that at the time of my enquiry he was still unable to follow his employment.</p> <p>Date of Accident—29th August, 1902. Place at which Accident happened—Coalfield Sidings, Miles Platting. Name of Person injured—John William Eastwood. Age of Person injured—30. Capacity in which employed—Pilot goods guard. Number of booked working hours per diem—10. How long on duty at time of Accident—2 hours. Nature of Injury—Right foot crushed, necessitating the amputation of three toes.</p> <p>Description of Accident—It would be impossible in words clearly to describe the formation of the coalfields sidings. They are on a much lower level than the main lines, and all waggons going to and from the sidings are worked over a rather sharp incline. There are ten sidings, of which the first three are connected with a short shunting neck at the bottom of the incline, but the others are reached from one of two cross-over roads, the first of which runs from the shunting neck to the east end of the No. 6 siding and the second from the east end of No. 6 to the west end of No. 9 sidings. There are no arrangements provided for running round. On the date in question it was necessary to take eight waggons from the east end of No. 7 siding to the west end of No. 9. To do that as usual Eastwood, assisted by the yard shunter, attempted to tow chain the waggons past the engine. The</p>	<p>Company for hand signalling purposes, but it was <i>not</i> considered part of the flagman's duty to "look out" for the safety of the contractors' workmen.</p> <p>Before the engine of the train in question ran on to the bridge the steam had been shut off, and consequently the noise caused by a steam crane which was then working on the bridge would prevent the slowly approaching train being heard, and the smoke and steam rising from the tar boiler referred to is said to have obscured the view of up trains.</p> <p>Morrison was strange to railway work, and knew nothing of the traffic, therefore (although he possibly did not exercise all the care he might have done) I feel it would be unfair to blame him. The traffic over that section of the line is very heavy, and seeing the circumstances under which Morrison was working I certainly think a look-out man should have been appointed, but owing to there not having been any arrangements made in the contract between the Railway Company and Messrs. Tate and Gordon for the providing of look-out men, I am unable to say who is to blame for not appointing one.</p> <p>In this case, although it is to be regretted that under the existing arrangements it is necessary (to avoid serious delay) to either tow or fly shunt waggons in these coal sidings, there is no doubt that this mishap was due to an error on the part of the injured man.</p>	<p>responsible for providing look-out men.</p> <p>A. F.</p> <p>For future safety I recommend that such arrangements should be made as would avoid the necessity for towing waggons in these crowded sidings. This, in my opinion, might be done by the putting in of a second connection between the No. 2 cross-over and the No. 9 sidings, as pointed out to the Company's representatives who attended my enquiry.</p> <p>A. F.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	<p>engine was then in No. 6 siding, and would have continued on that line, but unfortunately, and for reasons which he cannot explain, Eastwood reversed the position of the cross-over points, with the result that as he had attached the drag chain to the fourth waggon the engine ran broadside into the moving waggons. Seeing that a collision was then unavoidable, for his own safety Eastwood, who was walking between the engine and waggons, hastily got on the side framing of the engine, but before he could then get clear his right foot was crushed between the engine framing and the side of the waggon.</p>	<p>The engine driver, E. Womersley, of the up train, saw Hirst. He was then about 150 yards distant, and Hirst was clear of all running lines, but as a warning to the latter Womersley sounded his engine whistle, and seeing Hirst walking towards the cross-over points, he kept it sounding until after the engine had passed the points. Besides this the foreman porter, J. Bramham, who was just then returning from his breakfast, seeing Hirst's position, called to him to keep clear, but unfortunately the warning was not heard.</p> <p>There is a good view of approaching trains, and there is no doubt that with proper care the mishap would not have happened. I am therefore of opinion that in this case the accident was due to want of caution on the part of the deceased.</p> <p>A. F.</p>	
	<p>Date of Accident—13th September, 1902. Place at which Accident happened—Hipperholme Stone Sidings. Name of Person killed—W. H. Hirst. Age of Person killed—21. Capacity in which employed—Relief porter. Number of booked working hours per diem—12. How long on duty at time of Accident—4 hours.</p> <p>Description of Accident—Hirst had been in the service for six months, and until a fortnight previous to the accident he had been employed as a goods porter at Halifax. On the 31st August he was sent to Hipperholme to act as relief passenger porter, and as such it became his duty, in turn with others, to clean and oil the different points. His duties were properly explained to him, and for a week before the mishap he had daily attended to the points unaccompanied by others.</p> <p>On the morning in question he left the station for the purpose of cleaning the points at the stone siding about a quarter of a mile southwards. When he reached the crossover road points at about 9.30 a train was approaching on each line, but having his full attention given to the down train he failed to notice the one on the up line, with the result that he was run over and killed.</p>	<p>There is no direct evidence as to how the mishap occurred, but from the position in which the body was found it appears as if Nicholson, after telling his driver to go ahead, remembered that the lamp on the front of the engine would require reversing to form a tail lamp for the return journey, and that he hurried to the front of the engine and tried to reverse it, but whilst doing so the engine was set in motion, with the result that he was knocked down and killed.</p> <p>The accident appears to have been due to misadventure. The cause of the train dividing was owing to the breaking of a coupling on Lancashire and Yorkshire goods waggon, No. 24659. The coupling was in good order, and no previous flaw or fault can be detected.</p>	
	<p>Date of Accident—19th September, 1902. Place at which Accident happened—Hindley. Name of Person killed—Samuel Nicholson. Age of person killed—24. Capacity in which employed—Fireman. Number of booked working hours per diem—11. How long on duty at time of Accident—8½ hours.</p> <p>Description of Accident—Nicholson, with engine driver John Ward, was engaged in working the 1.25 a.m. goods train from Aintree to Middleton, with engine No. 611. The train consisted of the engine, 49 waggons and a brake van. After passing Westwood Park, which is situated about a mile and a half west of Hindley, the driver noticed by the working of the engine that the train had become divided, and knowing that the line at that point was on a sharp rising gradient, he brought the engine and ten waggons attached to a stand at the next signal cabin (Hindley No. 3), from which point, after placing a tail lamp on the waggon, Nicholson (as</p>		

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE— <i>cont.</i>	directed in Rule No. 221c) rode on the latter until reaching the Hindley Station signal cabin, where the waggons were shunted into one of the sidings for storage. After detaching the waggons from the engine, Nicholson placed a lamp on the front of the tender (to form a head light for the return journey to Westwood Park), and then called to the driver to go ahead, but after the engine had been run to the main line, as Nicholson did not join the engine, a search was made for him, and his body was found lying between the rails at a point just in front of where the engine had been standing.	consequently it is very probable that the breakage was due to a sudden strain, such as might be caused by the driver applying extra steam. A. F.	
LANCASHIRE AND YORKSHIRE AND LONDON AND NORTH-WESTERN JOINT.	<p>Date of Accident—7th August, 1902. Place at which Accident happened—Leeds. Name of Person injured—Thomas Green. Age of Person injured—16½. Capacity in which employed—Chain lad. Number of booked working hours per diem—12, with two hours off for meals. How long on duty at time of Accident—4½ hours. Nature of Injury—Left hand crushed.</p> <p>Description of Accident—At about 10.45 a.m. Green stood in the four-footway of the "Old hoist" road with the coupling link of a wagon in his hands ready to put it into the draw-bar hook of a wagon which was being drawn by a capstan against the wagon at rest. As the waggons were being joined together, Green attempted to couple them, and while doing so his left hand was crushed between the draw-bar hooks and coupling links, and so injured as to cause him to be still off duty at the time of the inquiry.</p> <p>Date of Accident—6th September, 1902. Place at which Accident happened—Leeds. Name of Person injured—Walter Kaberry. Age of Person injured—25. Capacity</p>	<p>The following instructions, issued and posted in March, 1901, have an important bearing upon this case:—</p> <p>"Notice to Capstanmen, Capstan Youths, &amp;c., Chain Lads, and others.</p> <p>"The above are again earnestly requested and cautioned to use every care for their own safety, and in the interest of the Companies, when moving or shunting trucks in the yards and sidings and in coupling waggons together not to go between when the vehicles are moving, but use the shunting poles provided for coupling and uncoupling."</p> <p>Green was young and inexperienced, and had only been in the service about two months, during which time he had regularly coupled the vehicles with his hands, and in this case he was instructed to do so by capstanman George Robinson, whose reasons for giving him such instructions were that it was done all over the yard, and that all the chain lads had sometimes to do it because there were no coupling poles on hand. As a proof of this, it was admitted that from August 22nd to September 2nd, and on other occasions, there were no shunting poles on hand for the use of the chain lads who could use them, and consequently they had to use their hands for coupling purposes in the same manner as Green was doing when he met with his mishap. Green had not been supplied with a coupling pole nor had he tried to use one. The chief responsibility for this mishap rests with the responsible officers at this place, who, although they were aware of this faulty system of working, permitted it to continue, instead of taking steps to ensure strict compliance with the Companies' rules and the special instructions quoted.</p> <p>The evidence was conflicting.</p> <p>Carrick stated that he informed Kaberry, prior to sending him down the</p>	<p>It is to be hoped that the Companies will, without delay, take steps to ensure that their own rules and instructions are strictly carried out in future with a view to prevent accidents similar to this one, which might have been far more serious.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LANCASHIRE AND YORKSHIRE AND LONDON AND NORTH-WESTERN JOINT— <i>cont.</i>	<p>in which employed—Shunter. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—3½ hours. Nature of Injury—Left thigh injured.</p> <p>Description of Accident—At about 9.30 p.m. charge shunter Arthur Carrick instructed Kaberry to go down the yard and lift up the brakes of some waggons standing on a falling gradient of about 1 in 100 in No. 5 siding. Kaberry did not find any of the brakes down, but still, he could not get the vehicles to start by pushing them by hand, and for the purpose of starting them forward he placed his coupling pole between the spokes of one of the waggon wheels with one end of it under the axle and then pressed the other end of the pole down to force the wheel to revolve, and while he was so engaged two other waggons were shunted into the siding, causing the one his coupling pole was in the wheel of to move, and he became entangled with the pole, and was thrown down with his left foot in the four-footway and his thigh on the rail, and while he was in that position the wheel of an empty waggon ran on to his thigh and remained there until he was found, with the result that his thigh was so injured that he was still off duty at the time of the inquiry.</p>	<p>yard to lift up the waggon brakes, that he would shortly be shunting two other waggons into No. 5 siding. Kaberry denies this, but whether he was or was not informed he acted very foolishly in making such an improper use of his coupling pole contrary to his instructions, and I consider he is chiefly to blame for the accident.</p> <p>J. J. H.</p>	
LONDON AND NORTH WESTERN.	<p>Date of Accident—1st August, 1902. Place at which Accident happened—Crewe. Name of Person killed—William Joseph Lightfoot. Age of Person killed—16. Capacity in which employed—Waggon Greaser (in the employ of the Great Western Railway Company). Number of booked working hours per diem—12. How long on duty at time of Accident—2½ hours.</p> <p>Description of Accident—At about 9.15 a.m. on the morning in question while the deceased was attempting to cross the line he was knocked down by the leading vehicle of a train of 24 vehicles which was being propelled by a London and North-Western Company's engine from Basford Hall sidings to Gresty Lane sidings (a distance of half a mile), and thrown into the four-footway, several of the waggons passing over him, whereby he received such injuries that he died from the effects the following day.</p>	<p>In this case the rear portion of the 5.50 a.m. goods train from Shrewsbury to Liverpool was as usual shunted into No. 1 down siding at Gresty Lane, after which the waggons for Crewe were taken to Basford Hall sidings and detached. The engine was then attached to the 24 vehicles which had to go forward, and while these were being propelled to Gresty Lane the brakesman, Thomas Brammer, rode in the fourth vehicle as he was not able to ride in any of the three leading vehicles owing to them being either sheeted waggons or covered vans. The accident appears to have been due to misadventure, but at the same time if brakesman Thomas Brammer (in the employ of the London and North-Western Company) had been able to ride in the leading vehicle of those being propelled he would probably have seen the deceased in time to have warned him and so prevented the accident.</p> <p>The train in question is dealt with in a similar manner every morning, although there appears to be no difficulty for arrangements being made for the whole of the train to be taken on to Basford Hall, and if this was done the brakesman would be able</p>	<p>So many serious accidents have occurred to men while riding on waggons that I consider the London and North-Western Company should take steps to abolish the practice entirely. When it is necessary that a man should ride either at the rear or at the front of the train, especially the latter, a brake van or other vehicle in which he can ride without danger should be provided, in which case the man would always be in the leading vehicle and in a position to warn persons who might be crossing or working upon the line upon which the train is being propelled.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH WESTERN—cont.	<p>Date of Accident—22nd August, 1902. Place at which Accident happened—Ashton Street, Manchester. Name of Person injured—John William Beech. Age of Person injured—24. Capacity in which employed—Temporary goods porter, acting as Hooker-on. Number of booked working hours per diem—11½. How long on duty at time of Accident—5½ hours. Nature of Injury—Right arm and right eye injured.</p> <p>Description of Accident—Two waggons were drawn by a capstan from what is known as the bottom side of the Ashton Street line on to a turntable upon which the rear vehicle had to be turned and then placed in No. 13 line adjoining. As soon as this vehicle was in position on the turntable, capstanman Daniel Hilton commenced to turn it while Beech was between it and the adjoining vehicle attempting to uncouple them with his hands, with the result that Beech was crushed between the right hand buffer of one vehicle and the draw bar hook of the other and so injured that he was still off duty when the inquiry was made.</p>	<p>to ride in his brake van instead of the waggons, both while they were being drawn and propelled.</p> <p>This accident happened in the Ashton Street goods shed, and owing to the turntable where it occurred being only fitted with two catches, and one of the pillars supporting the roof being so near to the capstan, the capstanman and his hooker-on cannot perform their duties at the same side. In this instance if Beech had been at the same side of the vehicles as capstanman D. Hilton, he would have seen his movements and not have attempted to turn the waggon while Beech was between it and the adjoining one for uncoupling purposes—in which case the accident would not have happened. At the same time Beech was to blame for going in between the vehicles for uncoupling purposes contrary to rule 23 (a), and capstanman D. Hilton was to blame for attempting to turn the waggon before it was uncoupled and without receiving a signal from Beech to do so, but there is some excuse for both men as they had been to render assistance to a man who was injured, and during their absence their work had got behindhand, and in their zeal to make up for the lost time they did not exercise that care which they otherwise would have done.</p>	<p>For future safety it is desirable that the Company should make such alterations as would enable the capstanman and his hooker-on to perform their respective duties at the same side within sight of each other.</p> <p>J. J. H.</p>
	<p>Date of Accident—24th August, 1902. Place at which Accident happened—Rugby. Name of Person injured—Wallace Burns Hart. Age of Person injured—39. Capacity in which employed—Shunter. Number of booked working hours per diem—11½. How long on duty at time of Accident—1 hour. Nature of Injury—Right hip injured. Off duty 8 weeks.</p> <p>Description of Accident—At 7.30 p.m. a North British Company's covered carriage truck, No. 131, had to be horse shunted from the up platform line to the horse dock. To get it there it had first to be taken across the up main line and from there to the horse dock. While this was being done Horse Shunter William Masters attended to the horse and Hart to the vehicle to bring it to rest as required. The vehicle not being fitted with a hand brake, Hart had to bring it to rest with a brake stick, and as it was approaching the engine line points he attempted to place the flat end of the brake stick on to the top of the wheel of the vehicle for that purpose, and while doing so the brake stick came in contact with the wheel and flew outwards striking him on the right hip with such force as to knock him down with the result stated above.</p>	<p>The primary cause of the accident (which might have been far more serious) was the fact of the vehicles not being fitted with a hand brake.</p>	<p>There is a considerable amount of shunting with horse boxes and carriage trucks at this station, and owing to a large number of these vehicles, including those belonging to the London and North-Western Company, not being fitted with hand brakes the men have to bring them to rest with a brake stick either by placing it where Hart attempted to place it (which is both a difficult and dangerous operation), or by repeatedly placing it on the rail and allowing the wheels to run over it. This appears to be often done from the number of broken brake sticks which were laid about the place. To avoid accidents of a similar nature both the Companies mentioned should, I think, be asked to take steps to have their horse boxes and carriage trucks fitted with suitable hand brakes.</p> <p>J. J. H.</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN— <i>cont.</i>	<p>Date of Accident—27th August, 1902. Place at which Accident happened—Shrewsbury. Name of Person injured—Thomas Hulme. Age of Person injured—47. Capacity in which employed—Fuelman. Number of booked working hours per diem—10. How long on duty at time of Accident—3½ hours. Nature of Injury—Back and left shoulder injured.</p> <p>Description of Accident—At about 1.30 a.m. Hulme and fuelman Edward Thompson were on the top of a waggon loaded with coal which stood on the weighing machine fixed at the north end of the machine road, and while they were engaged throwing the coal from the waggon into the tender of an engine standing opposite on the adjoining line, some other waggons were shunted into the machine road, causing the one the men were working at to be driven quickly forward with the result that both men were knocked down. Fortunately Thompson fell on to the coal and was not injured, but as Hulme was near the end of the waggon, he was thrown over the end on to the ground in the four-foot way between the waggon he had been working at and the adjoining one, and so injured that he was off duty 10 days.</p>	<p>The shunting during the night in the locomotive shed and yard is done by the shed turner (i.e. engine driver) and his fireman.</p> <p>In this case, there was no necessity for moving, nor was it intended to move the waggon the fuelmen were working at, consequently they were not warned. Engine cleaner Henry Price, who was acting as fireman, was on the ground to give the necessary signal to his driver, J. Roberts, to stop before the waggons being shunted in to the machine road came in contact with those at rest there, but he neglected to do so with the result that these vehicles, including the one the fuelmen were working at, were driven forward about 12 yards.</p> <p>The responsibility for the accident chiefly rests with Price. He was, however, not provided with a proper lamp for shunting and signalling purposes, having only a small one known as a gauge glass lamp, he was inexperienced in shunting never having performed this work previously during the night, and he did not use a coupling pole for coupling purposes as directed in Rule 23 (a).</p>	<p>For future safety, the Company should make arrangements for the person in charge of the shunting operations to be provided with a suitable lamp so that he could have the best possible view, and also be able to give the necessary signals to the driver, and in addition, steps should be taken for Rule 23 (a) to be strictly carried out.</p> <p>J. J. H.</p>
	<p>Date of Accident—27th August, 1902. Place at which Accident happened—Walsall. Name of Person injured—Henry Brunt. Age of Person injured—38. Capacity in which employed—Mason. Number of booked working hours per diem—11½. How long on duty at time of Accident—2½ hours. Nature of Injury—Head and ribs injured.</p> <p>Description of Accident—At about 8.10 on the morning in question, Brunt was engaged placing iron wedges in some large blocks of stone which stood in a waggon standing in No. 4 siding in the permanent way yard. While he was so engaged, five other waggons were shunted into the siding so violently as to drive forward those standing there, and move the waggon Brunt was in, causing him to be thrown down, and when he fell, his ribs struck the end of the waggon, and his head the end of the adjoining vehicle, with the result that he was so injured that he was off duty 3½ weeks.</p>	<p>About 10 minutes prior to the accident, labourer Walter J. Pickering, who performs the whole of the shunting operations in this extensive permanent way yard, walked round No. 4 siding. At that time, there was no one working in or about the vehicles standing there, but as Pickering was well aware that the siding in question was used for loading and unloading purposes, he should not have permitted the vehicles he shunted into No. 4 siding to come in contact with those standing there fully 120 yards from the fouling point of the adjoining siding, especially when the vehicles were only required to go clear of the latter siding.</p> <p>The responsibility for this accident rests with Pickering for (1) neglecting to bring the vehicles being shunted into No. 4 siding to rest before striking the other vehicles standing there, and (2) for neglecting to warn Brunt as directed in rule 112 (a).</p> <p>J. J. H.</p>	
	<p>Date of Accident—29th August, 1902. Place at which accident happened—Coppull Hall Colliery. Name of</p>	<p>The primary cause of the mishap was due to the waggon which Butler</p>	<p>The Company should use their influence with Messrs. Pearson and Knowles, Colliery</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN—cont.	<p>Person injured—Thomas Butler. Age of Person injured—14. Capacity in which employed—Number taker. Number of booked working hours per diem—12. How long on duty at time of Accident—8 hours. Nature of Injury—Face and right arm injured.</p> <p>Description of Accident—At about 3.25 p.m. during shunting operations in the Coppull Hall Colliery sidings, a London and North Western Company's engine with a brake van attached next to it, was drawing some waggons out of the "brick kiln siding." Butler wished to copy the numbers of some waggons standing in one of the eastern sidings, and to get there he jumped on to the step of the brake van at the west side intending to pass through it, and while opening the door for that purpose, he came in contact with a waggon standing on the adjoining siding and was thrown to the ground and so injured that he was still off duty when the inquiry was made.</p>	<p>came in contact with having been left standing too near the fouling point of the exit from the sidings to the shunting neck, but I was unable to ascertain who left the vehicles standing in that position although it appears to have been one of the shunters employed by Messrs. Pearson and Knowles, the owners of the colliery.</p>	<p>Owners, Wigan, to issue instructions to their shunters that in all cases, waggons left standing in sidings must be well clear of the fouling points of any adjoining sidings or lines.</p> <p>J. J. H.</p>
	<p>Date of Accident—3rd September, 1902. Place at which Accident happened—Hillhouse near Huddersfield. Name of Person injured—Joseph Allcock. Age of Person injured—39. Capacity in which employed—Painter. Number of booked working hours per diem—11½. How long on duty at time of Accident—4½ hours. Nature of Injury—Groin, both hips, and both arms injured.</p> <p>Description of Accident—At about 10.20 a.m. Allcock and painter Albert Marsh were painting a gas pipe which runs along the wall of the cattle dock, and while so engaged a waggon was shunted from No. 6 siding into the cattle dock siding and came into contact with two waggons standing there, driving them forward, with the result that the leading vehicle first struck Marsh knocking him against Allcock, after which Marsh fell into the four-foot way and escaped with slight bruises, but Allcock was crushed between the waggon and dock wall, and so injured that he was off duty five weeks.</p>	<p>To commence work the men pushed two waggons about 12 yards northwards, and were working in the space left when the accident happened. They did not inform any of the shunters of what they were about to do, their reasons for not doing so being (1) that they saw a red flag fixed at the points which can be set for either the cattle dock siding (in the four-foot way of which they were working) or the "cripple siding" adjoining in which waggons are repaired (2) they asked a man employed by a private firm repairing vehicles if the red flag protected men working in both sidings and he led them to believe it did, but as the red flag was only intended to protect the men working at waggons in the cripple siding, shunter F. Boothroyd was quite justified in shunting vehicles into the cattle dock siding.</p> <p>The accident was chiefly due to a misunderstanding.</p>	<p>When red flags are used to protect men working in a particular siding, a flag should be placed upon the leading vehicle standing in that siding.</p> <p>Further, the painters should, as directed in Rule 17 (a), be supplied with a copy of the Company's rules and regulations so as to enable them to carry out the same.</p> <p>J. J. H.</p>
	<p>Date of Accident—11th September, 1902. Place at which Accident happened—Workington. Name of Person injured—John Moore. Age of Person injured—28. Capacity in which employed—Fuelman, acting as fireman and shunter. Number of booked working hours per diem—11½. How long on duty at time of Accident—5 hours. Nature of Injury—Thumb and fore finger of right hand injured.</p> <p>Description of Accident—At about 11 a.m. on the date in question, Moore was working as fireman and shunter with shed turner (i.e., engine driver) D. Latimer. Twelve waggons were drawn out of the sleeper siding, three of which were shunted in the coal bank road, but as the engine was short of steam it was unable to push them clear of</p>	<p>There are three fuelmen employed at this place, all of whom in turn act as fireman and shunter with the shed turner, and while so acting, perform the necessary shunting operations in the locomotive yard and shed.</p> <p>The rails of the coal bank road are laid upon longitudinal timbers which are so narrow that Moore was unable to obtain a foothold upon them while releasing the brake, and as the timber was about nine inches higher than the ballast at the spot, it was necessary for him to grasp one of the buffers as he had no other means of</p>	<p>It is not the practice to use the brakes to secure the waggons on the coal bank inclines, old brake blocks being generally used as sootches for that purpose but there were none on hand on the morning of the accident. This practice is so objectionable that it should be forbidden.</p> <p>The fuelmen are not supplied with a copy of the rules or with coupling poles as directed in Rules 17 (a) and 23 (a) respectively, and for future safety the fuelmen who regularly act as firemen and shunters should be supplied with a copy of the rules and also provided with suitable appliances to enable</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH-WESTERN— <i>cont.</i>	<p>the bank road adjoining, and it became necessary for Moore to pin down the brake of the leading waggon to prevent the vehicles running down the incline. After this the nine waggons were shunted back into the sleeper siding, and then the engine was taken against the three waggons to push them clear. Before this could be done it was necessary to release the brake of the leading waggon, for which purpose Moore sat on the brake lever, and while pressing it down to take the pin out, owing to the buffer being a wooden one, he was unable to place his arm round it, and consequently he placed it over the buffer spindle of the second vehicle, with the result that when the waggons were closed up his thumb and finger were crushed between the buffer spindle and buffer shell, and so injured that he was still off duty when the inquiry was made.</p> <p>Date of Accident—12th September, 1902. Place at which Accident happened—Lancaster. Name of Person injured—John Dowthwaite. Age of Person injured—43. Capacity in which employed—Brakeman acting as shunter. Number of booked working hours per diem—10½. How long on duty at time of Accident—10½ hours. Nature of Injury—Face injured.</p> <p>Description of Accident—In this case the 9.30 p.m. goods train from Manchester to Carnforth arrived at Lancaster at about 3.15 a.m., and detached 12 waggons which were as usual placed in the shunting spur. From there it was necessary to run them by gravity into the goods yard sidings, and while this was being done, Dowthwaite attended to the first four vehicles which were for No. 4 siding, and shunter R. Lancaster attended to the remaining eight vehicles which were for No. 3 siding. While Dowthwaite was attempting to place his coupling pole between the spring of the waggon and the brake lever to press the latter down for the purpose of steadying the vehicles into the siding, the pole caught the wheel of the waggon and rebounding struck him on the face, so injuring it as to cause him to be off duty five weeks.</p> <p>Date of Accident—26th September, 1902. Place at which Accident happened—Stafford. Name of Person injured—John Hall. Age of Person injured—41. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—3 hours 50 minutes. Nature of Injury—Body crushed and head injured.</p> <p>Description of Accident—A special cattle train ex Carlisle arrived at Stafford about 9.50 a.m. After arrival, North British Company's waggon No. 25,474, containing cattle, was loose-shunted into the cattle dock siding. While the vehicle was running towards the dock Hall attended to the brake at the east, i.e., dock side, and on reaching the dock he left the vehicle in motion with the brake-lever down, expecting by this</p>	<p>taking the pin out but by sitting on the brake lever. In my opinion, if he had been supplied with a proper brake stick to press down the brake lever the accident would not have happened.</p> <p>A considerable amount of shunting is done daily at this place by gravity down an incline of 1 in 95, and although the Company have issued instructions forbidding the men to use their coupling poles for the purpose of applying the waggon brakes, only one brake stick is generally available for that purpose. In this case neither Dowthwaite nor Lancaster used it, and from the evidence given it is clear that the men have been permitted to ignore the instructions and drift into a dangerous method of working.</p> <p>The point-rod in question is well clear of the path the men generally use. The mishap appears to have been due to misadventure, at the same time if the waggon had been fitted with an either side brake it would not have occurred, because in that case there would not have been any necessity for Hall to have placed himself in such a dangerous position between the dock wall and vehicle to bring it to rest.</p>	<p>them to carry out the Company's own rules and regulations.</p> <p>J. J. H.</p> <p>J. J. H.</p> <p>J. J. H.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
LONDON AND NORTH WESTERN— <i>cont.</i>	means that the waggon would come to rest opposite one of the cattle pens. He then crossed to the west side of the vehicle and walked by the side of it until observing that it was going to travel too far, when he crossed in front of it and attempted to press down the brake-lever while walking backwards in front of the vehicle, and when so engaged his foot slipped off a point-rod running by the side of the dock wall, with the result that the vehicle struck his right shoulder throwing him against the dock wall, and before he could recover himself he was crushed between the waggon and dock wall and so injured as to cause him to be off duty 14 days.		
MIDLAND ... ..	<p>Date of Accident—2nd July, 1902. Place at which Accident happened—Leeds. Name of Person injured—John Dalley. Age of Person injured—18. Capacity in which employed—Carriage washer. Number of booked working hours per diem—11½. How long on duty at time of Accident—6½ hours. Nature of Injury—Left side injured.</p> <p>Description of Accident—Dalley was instructed to assist in washing some carriages standing south of the passenger platforms in what is known as the "back road." For this purpose it was necessary for him to take the plank he had to stand upon from No. 1 platform to the south side of the vehicle he had to wash, and while doing so he attempted to pass between two vehicles standing a little apart in the siding adjoining the back road. Just at that moment some other vehicles were shunted against them, and as they were closed together he was crushed between the buffers and so injured as to cause him to be off duty one month.</p> <p>Date of Accident—12th July, 1902. Place at which Accident happened—Wandsworth Road. Name of Person injured—H. C. Smith. Age of Person injured—42. Nature of Injury—Left knee and side bruised.</p> <p>Description of Accident—Smith is employed as a coal porter at Wandsworth Road by the Tyne Main Coal Company. On the morning in question he was engaged in conveying coal along a temporary plank platform, arranged on trestles, from a waggon in the No. 7 siding to a coal stack about 15 yards distant. Other men were also engaged in unloading some heavy stores from waggons standing near to the entrance of the same siding. At about 10.15 a.m. it was necessary to place some other "stone" waggons for unloading, but as they were being closed up for coupling purposes by the shunting engine the coal waggons standing in the rear were also slightly moved, with the result that the platform previously referred to was displaced, and Smith was thrown to the ground and injured as stated above.</p> <p>Date of Accident—23rd July, 1902. Place at which Accident happened—Leeds. Name of Person injured</p>	<p>The accident must be attributed to Dalley's own want of care as there was no necessity for him to have attempted to pass between the buffers, nor was there any necessity for red flags to be placed on the front end of the leading vehicle, because no one was at work at or about the vehicles standing in that siding.</p> <p>J. J. H.</p> <p>Goods-guard George Portman was in charge of the shunting operations. He was fully conversant with the Company's Rule 112a, but as it was not his intention to move the coal waggons standing in the rear of those he required to move he did not think it necessary to give any warning to anyone working at them.</p> <p>The accident was due to the non-observance of the rule referred to, for which (whatever may have been his intentions) I am of opinion that guard G. Portman is to blame.</p> <p>A. F.</p> <p>In this case although Iron acted unwisely in not closing the doors as</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i>	<p>—George Killerby. Age of Person injured—82. Capacity in which employed—Carriage cleaner. Number of booked working hours per diem—11½. How long on duty at time of Accident—4½ hours. Nature of Injury—Arms, thighs and ankles bruised.</p> <p>Description of Accident—On the south side of the station there are two carriage sidings running parallel with the No. 1 platform line. On the morning in question at about 9.30, Killerby and another man named George Iron were engaged in cleaning some carriages standing at the platform, to do which, Killerby necessarily stood on some cleaning boards arranged alongside the vehicles. Whilst he was so employed, Iron went through a compartment of one of several carriages then standing in the No. 1 siding for the purpose of getting a bucket of water from a tap fixed on the south side of the No. 2 siding. Just at that time shunter A. H. Price walked down the siding and coupled up the vehicles preparatory to taking them from the siding, and although he saw that the carriage doors had been left open by Iron, he expected him momentarily to return and close the doors. Price, therefore, returned towards the entrance of the sidings and gave the driver a signal to draw ahead, but as Iron did not return in time to close the doors, one of the latter struck and displaced the cleaning boards on which Killerby was standing, and he was thrown to the ground and injured.</p> <p>Date of Accident—13th August, 1902. Place at which Accident happened—St. Philip's, Bristol. Name of Person injured—Joseph Curtis. Age of Person injured—30. Capacity in which employed—Goods porter. Number of booked working hours per diem—11. How long on duty at time of Accident—5½ hours. Nature of Injury—Left foot injured.</p> <p>Description of Accident—At about 12.15 p.m., Curtis was engaged untying the sheet strings on a waggon standing on the goods shed line just outside the goods shed. The waggon was about to be drawn inside the shed, but before the capstan was set in motion for this purpose, acting capstanman A. Boxisto warned Curtis who stood clear. After this, Curtis followed the vehicle for about 12 yards until it came to rest or nearly so owing to the capstan having been checked sufficiently to allow the capstan rope to fall on to the ground, and as Curtis thought the operation was completed, he placed his left foot between the rope and the outside rail of the goods shed line and resumed work. Directly afterwards the rope again became taut, and as it did so it caught the heel of his left boot and forced his left foot under the wheel of the vehicle, with the result that his toes were run over and so injured that he was still off duty when the enquiry was made.</p>	<p>he passed through the carriage, I am of opinion that shunter A. H. Price is chiefly to blame for the accident. Having seen that the carriage doors were open, it was his duty either to close them or to have waited for Iron to do so before giving a signal for the vehicles to be moved.</p> <p>A. F.</p> <p>Curtis should have waited until Boxisto had taken off the capstan rope before resuming work, but he did so with the intention of expediting the work, under the impression that the movement of the vehicle had been completed, and although he acted unwisely, the accident may be chiefly attributed to his excess of zeal.</p> <p>J. J. H.</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c..	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND— <i>cont.</i>	<p>Date of Accident—2nd September, 1902. Place at which Accident happened—Manningham. Name of Person injured—Joseph Thorpe. Age of Person injured—34. Capacity in which employed—Engine driver. Number of booked working hours per diem—11. How long on duty at time of Accident—10½ hours. Nature of Injury—Lower part of body crushed.</p> <p>Description of Accident—About 10.45 p.m. on the day in question, engines Nos. 802, 1,364, and 588, stood on the ash pit road. The first engine was nearest to the engine shed, and when it was set ahead about 10 yards, Thorpe, who was in charge of engine No. 1,364, instructed his fireman, E. Rowsing, to set their engine ahead over the ash pit in position for him to examine the motion, for which purpose after the engine had been brought to rest he attempted to step down into the pit, and while doing so he was caught between the buffer of his own engine and the buffer of engine No. 588, which had been set ahead by driver John Bashford, and so injured that he was off duty 3 weeks.</p> <p>Date of Accident.—4th September, 1902. Place at which Accident happened—Toton, North Down, empty waggon sidings. Name of Person injured—Job Lines. Age of Person injured—54. Capacity in which employed—Goods Guard. Number of booked working hours per diem—12. How long on duty at time of Accident—6 hours and 50 minutes. Nature of Injury—Collar bone fractured.</p> <p>Description of Accident—Lines had worked in charge of the 6.20 p.m. goods train from Leicester to Toton Sidings, at which depôt the train arrived about 9.10 p.m. After having disposed of all the waggons, the engine and break van were taken along the goods line <i>en route</i> to the locomotive yard, where the engine was to be turned for return working.</p> <p>The points leading from the goods line to the locomotive sidings are situated about 200 yards north of the Toton Down North signal cabin from which they are worked. After the break van had cleared the points—seeing the disc signal was in the “all right” position—the engine and van were set back towards the sidings, but from some cause the van, which was then being propelled, left the rails at the points, and Lines, being thrown sharply against the side of the van, received injury as stated above.</p> <p>Date of Accident—6th September, 1902. Place at which Accident happened—Derby (London Road Junction) Names of Persons injured—Joseph Johnson and Frank</p>	<p>Although it is the general practice to leave sufficient space between each engine while they are standing on the ash pit road so that the men may pass round or go underneath their engines to examine them, Thorpe displayed a great want of caution in neglecting to look southwards before attempting to step behind the buffer of his engine into the ash pit, because had he done so he could have seen engine No. 588 approaching in time to have prevented the accident.</p> <p>J. J. H.</p> <p>There is no direct proof of the cause of the break van leaving the rails. When running along the goods line the engine and van would have to pass in front of the signal cabin, from which point under ordinary circumstances the signalman, E. S. Burton, would naturally watch the movements until he received a signal from the guard intimating that the van had cleared the points, after which Burton should have reversed the position of the latter. In this case, however, Burton appears to have mistaken an unintentional movement of Lines's hand lamp, and so pulled over the points for the siding before the engine and van had actually reached them, with the result that when the engine reached the points they were forced open. The strain thus caused would prevent the points closing properly, so that, although the disc signal was in the “all right” position when the engine and van were set back towards the siding, the leading wheels of the latter took the goods line and the trailing wheels got on the siding rail and were thrown off.</p> <p>I am of opinion that in this case the mishap was due to an error of judgment on the part of signalman E. S. Burton.</p> <p>A. F.</p> <p>After the mishap it was found that the cause of the van leaving the rails was owing to a clinker having got into the points</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
MIDLAND—cont.	<p>Sibert. Ages of Persons injured—Joseph Johnson 34, Frank Sibert 24. Capacity in which employed—Ballast train labourers. Number of booked working hours per diem—11. How long on duty at time of Accident—6 hours. Nature of Injuries—Johnson, left hip and thigh bruised; Sibert, back and right leg bruised.</p> <p>Description of Accident—These men, with others, had travelled from Trent in a brake van attached to the rear of a ballast train. On reaching Derby at 12 noon, the train had to be set back from the goods line through two cross-over roads <i>en route</i> to the Park carriage sidings. The first cross-over was passed in safety, but when the brake van reached the facing points of the second it was thrown off the rails. Seeing their danger the labourers naturally tried to get clear from the van, and all, except Johnson and Sibert, succeeded in doing so, but before these men could get clear they were struck by the van, which was just then falling on to its side, and injured as stated above.</p> <p>Date of Accident—20th September, 1902. Place at which Accident happened—St. John's Colliery, Normanton. Name of Person injured—Solomon Pratley. Age of Person injured—38. Capacity in which employed—Goods Guard. Number of booked working hours per diem—Irrregular. How long on duty at time of Accident—11 hours. Nature of Injury—Left foot injured.</p> <p>Description of Accident—Pratley had worked a train from Teton to St. John's Colliery, and, after arrival there, prior to placing the whole of the train in the Colliery siding, he uncoupled his brake van, leaving it standing in the down goods line, after which he stood between that line and the down main line for signalling purposes, and when signalling his driver to stop, after the rear vehicle of his train was over the points leading to the sidings, Inspector John Griffen pulled the lever to set the points in position, and as he did so Pratley's left foot was crushed between the angle working the cross point rod and the straight rod, and so injured that he was still off duty at the time of my inquiry.</p>	<p>which prevented them closing. The points are about 50 yards from the signal cabin, from which they are worked, so that it would be impossible for the signalman to see or detect their condition.</p> <p>It is impossible to say how the clinker got in the points, but I think it very probably fell from a passing waggon.</p> <p>In this case there is no doubt the mishap was purely accidental.</p> <p>A. F.</p> <p>The inlet and outlet points between the down goods line, and the sidings are worked from a lever fixed to a ground frame at the west side of the shunting neck. From this ground frame the point rod crosses the shunting neck and is connected by an angle to another rod, which is fixed between the down main line and down goods line, and which runs parallel with these lines. Both the point rods are badly exposed, and owing to an over-bridge crossing the lines, it was necessary for Pratley to stand between the lines mentioned for signalling purposes. At the same time, he might have kept his foot clear of the point angle, but neither he nor Inspector Griffen realized that when the point lever was pulled over it moved the angle six inches, a sufficient distance to crush Pratley's foot.</p> <p>The primary cause of the accident was due to the point rods angle being exposed, and to add to Pratley's danger there was also near the spot a signal wire badly exposed.</p>	<p>The point rods and signal irons which cross the path the men have to use should be protected with side timbers and the ballast made level with the top of the timbers, and those rods working the inlet and outlet points referred to might, with advantage, be removed to the west side of the shunting neck.</p> <p>J. J. H.</p> <p>Goods guard G. Lancaster, who was in charge of the shunting operations, was unable to see Shewan, but as a precaution he went twice round the waggons standing in the front road previous to the mishap. Shewan frankly admits that when he went into the yard shunting operations were in progress, and further that there was no necessity for him to perform the work he</p>
NORTH BRITISH ...	<p>Date of Accident—10th July, 1902. Place at which Accident happened—Clarkston. Name of Person injured—John Shewan. Age of Person injured—20. Capacity in which employed—Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—10½ hours. Nature of Injury—Left arm crushed.</p> <p>Description of Accident—At about 9 p.m. Shewan was engaged in untying the sheet strings and removing the sheet from off a</p>		

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued*.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>waggon standing in the front road. To perform part of the operation he had to lean forward between the buffers, and while he was doing so some other waggons were shunted from the west end into the front road, and colliding with the standing waggons pushed them forward, and as the buffers were closed up Shewan's left arm was crushed between them and so injured as to cause him to be still off duty when the inquiry was made.</p> <p>Date of Accident—16th July, 1902. Place at which Accident happened—Perth goods shed. Name of Person injured—Peter Oliphant. Age of Person injured—26. Capacity in which employed—Goods Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—2½ hours. Nature of Injury—Right foot crushed.</p> <p>Description of Accident—On the morning in question Oliphant was instructed to assist in unloading certain machinery which was in a waggon then standing in the goods shed. To enable him to untie the rope by which the machine was bound to the waggon Oliphant necessarily stood with his left foot on the coupling (the waggon was coupled to others) and his right foot resting on the offside buffer. Whilst he was in that position other waggons were shunted into the same siding, and as the moving waggons closed up to the standing ones the buffers of the latter were slightly pressed, with the result previously stated.</p>	<p>was engaged with until after the shunting had been completed. He ought to have either waited until the shunting had been performed or kept a proper look out for his own safety, and as he neglected to do so he is solely responsible for the mishap.</p> <p>J. J. H.</p>	
	<p>Date of Accident—2nd August, 1902. Place at which Accident happened—Queen Street, Glasgow. Name of Person injured—David Terrace. Age of Person injured—31. Capacity in which employed—Porter. Number of booked working hours per diem—12. How long on duty at time of Accident—30 minutes. Nature of Injury—Left hand and wrist bruised.</p> <p>Description of Accident—A luggage truck loaded with boxes of fish was placed near to a brake-van of a passenger train for unloading. The truck was placed sideways to the brake-van, and by some means two of the wheels got over the edge of the platform. After the fish had been transferred to the van Terrace, with others, assisted to lift the luggage truck back to the platform, and whilst doing so his left hand was crushed between the truck and van.</p>	<p>In this case the mishap was due to the non-observance of Rule 112a, for which the head shunter, H. Walker, must be held responsible. At the same time, in fairness to Walker, it should be stated that his excuse for neglecting to comply with the rule referred to is that owing to insufficient staff it would be impossible for him to get through the shunting, which is very heavy, if he worked strictly to that rule, and from the evidence given by the Company's local agent, A. Yale, there is no doubt much truth in Walker's statement.</p> <p>In this case the mishap was purely accidental.</p> <p>A. F.</p>	<p>For the safety of the goods shed staff it is very necessary that Rule 112a should be strictly adhered to, and to ensure that being done the Company should seriously consider the statement made by Walker and confirmed by their local agent.</p> <p>A. F.</p>
	<p>Date of Accident—8th August, 1902. Place at which Accident happened—Meadowbank Sidings, near Edinburgh. Name of Person injured—Alexander Calder. Age of Person injured—42. Capacity in which employed—Goods guard. Number of booked working hours per diem—11. How long on duty at time of Accident—7½ hours. Nature of Injury—One rib broken and right arm injured.</p> <p>Description of Accident—Calder was working with the 11.55 p.m. up goods train from Edinburgh to</p>	<p>Meadowbank sidings are situated between Edinburgh and St. Margaret's. The connections to the sidings are from the up main line about 100 yards west of the St. Margaret's signal cabin, from which the points and signals are interlocked, but they are worked from a ground frame by the goods guards. In this case Calder intended to ride forward on the side of the waggon</p>	<p>Unless a portion of the wall were removed sufficient clearance could not be given between it and the outer rail of the siding while the points are in their present position, but there would be no difficulty in removing them further westwards and so avoid the wall without interfering with the siding accommodation, and for future safety I strongly recommend that this be done without delay. If</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH— <i>cont.</i>	<p>Portobello, which arrived at Meadowbank Sidings at 12.30 a.m., where 20 waggons had to be attached. For this purpose the engine was first taken into the loading bank siding and attached to the vehicles standing there, and then these vehicles were set back into the outer road and attached to those standing in that road. After this Calder signalled the driver forward over the outlet points, and while riding on the side of a waggon with his feet resting on an axle-box of the vehicle he was caught between the waggon and the side of the wall of the Company's sheet factory and thrown to the ground, and so injured as to cause him to be still off duty at the time the inquiry was made.</p> <p>Date of Accident—11th August, 1902. Place at which accident happened—Burntisland. Name of Person injured—Hugh McKenzie. Age of Person injured—20. Capacity in which employed—Fireman. Number of booked working hours per diem—12. How long on duty at time of Accident—6½ hours. Nature of Injury—Back injured.</p> <p>Description of Accident—McKenzie was working with engine No. 364, which was running light from the east to the west dock. At 5.40 a.m., when it was approaching the northward corner of the wall supporting the roof of the old passenger station, it collided with engine No. 883 which was taking ten waggons from the west dock to the No. 2 hoist road. The force of the collision caused a piece of coal to be thrown off the tender on to McKenzie's back, so injuring it as to necessitate his being off duty one week.</p> <p>Date of Accident—September 11th, 1902. Place at which Accident happened—Thornton. Name of Person injured—James Suttie. Age of Person injured—21. Capacity in which employed—Porter. Number of booked working hours per diem—11. How long on duty at time of Accident—6½ hours. Nature of Injury—Collar bone fractured.</p> <p>Description of Accident—At about 1.15 p.m., as the 12.10 p.m. passenger train from Edinburgh to Dundee was running to the platform, Suttie made an attempt to get on the foot-step of a brake-van placed in the centre of the train, but missing the handle he fell on to the side of the van. Fortunately the speed of the train was such that he was knocked from it, but in falling on the platform he received injuries as previously stated.</p> <p>Date of Accident—12th September, 1902. Place at which Accident happened—Perth Marshalling Sidings. Name of Person injured—John Shorto Wallace. Age of Person injured—15. Capacity in which employed—Number-taker (in the employ of the Railway Clearing House). Nature of Injury—Toes on right foot crushed. Description of Accident—Wallace is</p>	<p>until reaching the points in order to attend to them as quickly as possible, as this is a busy section of the line.</p> <p>The wall which Calder came in contact with comes to a point within 2 feet 6 inches from the nearest rail near to the outlet points, and the accident was chiefly due to the insufficient space between the running line of the siding and the wall in question.</p> <p>To add to Calder's dangers the place was in absolute darkness.</p> <p>All trains and light engines running between the east end of the old station and the west dock travel along the same line, and at the spot where this accident happened, owing to the course of the line and the south wall supporting the southern portion of the station roof being only three feet from the running line at the west end, neither of the enginemmen could see the other engine approaching in time to prevent the collision.</p> <p>The accident was due to the enginemmen's view being obscured by the wall mentioned.</p> <p>Suttie had given notice of his intention to leave the Company's service on the day in question and he did so, and, consequently, owing to his whereabouts not being known, he was not present at my Inquiry, but from the evidence given there appears to have been no necessity for him to have placed himself in such a dangerous position, and as his actions were contrary to the Company's rule, I am bound to conclude that in this case the accident, which might have proved far more serious, was due to his own misconduct.</p> <p>A. F.</p> <p>In this case, so far as Wallace's actions are concerned, the accident was due to misadventure, but I am of opinion that the primary cause was his being sent to copy the numbers on the waggons before the shunting had been completed, which in such busy and crowded</p>	<p>my recommendation is carried out it would hardly appear necessary to press the question of lighting, as the men would in that case have the benefit of the electric light from the street lamps when performing the small amount of shunting which is done in the dark.</p> <p>J. J. H.</p> <p>The old station has not been used for a considerable time for passenger traffic and the southern portion of it is hardly ever used for any purpose which requires a roof.</p> <p>For future safety it is desirable that the southern portion of the station roof and the south wall supporting it should be taken down, especially as the latter not only obscures the view of the men engaged in shunting operations (which are heavy at about the spot) but is also dangerously near to the running line.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH BRITISH—cont.	<p>in the service of the Railway Clearing House and is employed as a number-taker at Perth. It is his duty to assist a senior number-taker named David Martin in the North British marshalling sidings. On the morning in question, owing to the sidings being nearly full of waggons, it was necessary during the formation of a certain outgoing goods train, to store 18 waggons (after they had been marshalled) in what is locally known as the "empty waggon" siding instead of in an adjoining siding and in front of others attached to the brake-van as would have been the case if there had been sufficient siding room. To avoid delay to the train after it had been marshalled, Martin requested Wallace to get the numbers of the 18 waggons referred to, and he (Wallace) went to do so, but at about 1.45 a.m. whilst he was so engaged, not knowing of Wallace's position, the guard attached the engine and gave a signal for the waggons to be moved. As that was being done, being anxious to get all the numbers, Wallace hurried alongside the moving vehicles, and in doing so, he stumbled over the fixed rail on a waggon turntable, several of which are arranged in these sidings, and falling to the ground, his right foot got foul of the rail, and was crushed by one of the wheels.</p>	<p>sidings as those in question, is, to my mind, a very dangerous practice. It was agreed at the time of my Inquiry, that for future safety, the numbers of all waggons <i>not marshalled on to the brake</i> can should be copied by the Railway Clearing House number-takers after the formation of the train had been completed, consequently no further action in this case seems necessary.</p> <p>A. F.</p>	
NORTH EASTERN ...	<p>Date of Accident—8th July, 1902. Place at which Accident happened—Tyne Dock. Name of Person injured—George Baker. Age of Person injured—80. Capacity in which employed—Goods Porter. Number of booked working hours per diem—11. How long on duty at time of Accident—10½ hours. Nature of Injury—Body crushed. Off duty 5½ weeks.</p> <p>Description of Accident—At about 4.30 p.m. Baker was engaged in tying the sheet strings on a waggon standing on the "warehouse side line." It was necessary for him to go into the four-foot way to perform part of the operation, and while doing so, his body was crushed between the buffers owing to the waggons being closed up. Horse-shunter Richard Irving, who moved the waggons by bringing another waggon with two horses from the west, was unable to see Baker owing to his being at the east end of the waggon he was engaged at, besides which, there was a covered waggon between the two. Irving, in accordance with the usual custom, called "look-out" while the waggon was being drawn down the line, but Baker did not hear the call, with the result stated above.</p> <p>Date of Accident—10th July, 1902. Place at which Accident happened—York. Name of Person injured—George Wm. Gott. Age of Person injured—28. Capacity in which employed—Shunter. Number of booked working hours per diem—10. How long on duty at time of Accident—6 hours. Nature of Injury—Neck and left shoulder bruised.</p> <p>Description of Accident—The 10 a.m. passenger train from York to the</p>	<p>It is impossible to tie all the sheet strings in the goods shed, and consequently the goods porters have to perform that operation after the vehicles have been placed on the warehouse side line adjoining the goods shed.</p> <p>Although the horse-shunters work with two horses, they have no one to assist them with the shunting, and while waggons are being placed on the line in question, the horse-shunters have to leave their horses unattended while they hold a pair of hand points. Besides this, they have to attach and detach their horse-chains, and also attend to the waggon brakes, and it is impossible for them to perform all these duties and carry out Rule 112 (a). The mishap was due to the rule in question not being carried out, but for the reasons stated, I cannot blame horse-shunter Irving.</p> <p>The evidence shows that before giving permission for the front portion to be set back, the acting assistant station master, J. W. Robson, had watched Gott finish the work necessary to the rear Great Northern brake, and he had no reason to suppose that Gott would depart from the usual practice.</p> <p>I am quite satisfied that</p>	<p>The horse-shunting is heavy at this place, and on such lines as the one in question where it is frequently necessary for men to go between waggons in the performance of their duties, Rule 112 (a) should be strictly carried out, and with this end in view, the horse-shunters should have an assistant who should be instructed to ascertain that all is clear before moving any waggons on such lines.</p> <p>J. J. H.</p>

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— cont.	<p>North, is formed of portions coming from the Midland and Great Northern lines. The Midland train, which arrives first, is brought to a stand at a certain point alongside the No. 5 platform, after which, the Great Northern train is taken to the rear, and the engine, when detached, is run through some facing points at the rear of the Midland portion on to the "through" line. The first portion is then set back, and the two trains coupled.</p> <p>There is always one, and often two newspaper vans to be detached from the rear of the Great Northern train. On the morning in question, there were two. These vehicles are fitted with the Gould coupling and buffers, and consequently, after they have been detached from the train, in order to protect the gangway ends of the vans, it is necessary to pull out the buffers and place a shield over the spindles. The buffers at the rear of the brake van are of course always drawn out and the shield applied at once, but those in front of the news vans are usually left until the vans have been placed in a siding. On the morning in question, after the newspaper vans had been detached, they were as usual drawn back by the pilot engine to allow the pilot shunter, G. W. Gott, to pull out and protect the buffers at the rear of the brake van. According to practice, the vans should have been taken to a siding, but as the shunt was being delayed by signal, instead of waiting until they had been placed in the siding, and in order to <i>facilitate the work</i>, Gott decided to arrange the buffers at once, but whilst he was doing so, the Midland coaches were set back to the standing Great Northern vehicles with the result that <i>owing to no hand brakes having been applied</i>, the latter (five carriages) were moved back, and Gott was crushed between the rear Great Northern brake and the front of the newspaper van.</p> <p>Date of Accident—10th July, 1902. Place at which Accident happened—Newport. Name of Person killed—Thomas Nelson. Age of Person killed—65. Capacity in which employed—Ganger of Platelayers. Number of booked working hours per diem—11. How long on duty at time of Accident—4 hours.</p> <p>Description of Accident—Nelson was in charge of the section of main lines about a mile in length (besides loop lines and sidings) immediately west of Newport passenger station. He had two platelayers to assist him named Moses Worth and Lewis James Foxton.</p> <p>On the morning in question the men were all engaged in making a special examination of the steel sleepers in the down main line, and at about 9.55 a.m. they were so employed about 270 yards west of the station. At that time Nelson was working in a stooping position near the outside rail, and his two men were similarly occupied near the parallel rail about 5 yards further west, when Foxton noticed that a down passenger train was then only about 40 yards distant. He at</p>	<p>Gott's actions were with good intentions, but knowing that the Great Northern carriages were likely to be moved back, he certainly acted very unwisely in taking up the position he did without first making arrangements for his own safety. At the same time, I cannot but think that had the hand-brakes in the brake-vans attached to the rear or Great Northern portion been properly applied, <i>which for general safety is in my opinion necessary</i>, the mishap would probably not have happened.</p> <p>A. F.</p> <p>At the point where the men were working the lines are on a 20 chain curve, and although up trains may be seen when at Newport Station—270 yards distant, yet owing to a high embankment it is impossible to see a down train approaching until it is within a distance of 90 yards.</p> <p>At the time of the mishap an up train was also passing on the adjoining line, and there is no doubt that the noise from that would prevent the men hearing the down train approaching.</p> <p>It appears that Worth saw the up train as it was passing the station, and had they then "stood clear of all lines" as directed in Rule 273 (a) the mishap would not have happened. The traffic is very heavy over the section of line in question, and as for the reasons stated, the men were unable to get a good view of ap-</p>	<p>There have been several accidents to platelayers in the same (Newport) district. Worth, who is second man in the gang in question, is of opinion that a look-out man is always necessary on their section of line, but in his evidence he stated that he had never known one to be appointed.</p> <p>For future safety, I recommend that the gangs should be sufficiently strengthened to enable the gangers to comply with the rules referred to.</p> <p>A. F.</p>



REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p>once called to Nelson and Worth to get clear, and he and the latter succeeded in doing so, but after the train had passed they found that Nelson, who apparently heard neither the call nor the train, had been knocked down and killed.</p> <p>Date of Accident—14th July, 1902. Place at which Accident happened—Waterhouses. Name of person injured—Robert Burton. Age of person injured—43. Capacity in which employed—Goods Porter. Number of booked working hours per diem—10½. How long on duty at time of Accident—10 minutes. Nature of Injury—Two toes of left foot broken.</p> <p>Description of Accident—On the morning in question Burton as usual carried a prop about 7 ft. 10 inches long to the rear end of seven waggons standing opposite the goods shed, so as to be in readiness to prop these vehicles along the warehouse line and thence along an independent line clear of the crossing leading to the warehouse line. While he was attempting to place the prop across the buffer spindles at the rear of the rear waggon it slipped from his grasp, owing to its being wet, and fell on to his toes so injuring them as to cause him to be off duty 5 weeks.</p>	<p>proaching down trains according to Rule 273 (c), a look-out man should have been appointed. As ganger, Nelson is held responsible for this, but seeing that his gang consisted of only two men besides himself, it is difficult to understand how under ordinary circumstances one of the men could be spared for such work, and I am therefore of opinion that it would be unfair to blame him.</p> <p>The mishap was accidental. Two goods trains which run respectively from Tyne Dock and Darlington, daily perform the same shunting operations at this place. The men working the former train never use the prop, but the men working the latter train are in the habit of doing so, though there is no necessity for the practice.</p>	<p>Moving waggons by means of a prop is attended with considerable danger, and where there is no necessity for it, as in this case, it should be strictly forbidden, and the prop which was supplied by the Company should be withdrawn without delay.</p> <p>J. J. H.</p>
	<p>Date of Accident—16th July, 1902. Place at which Accident happened—Cargo Fleet. Name of Person injured—James L. Coulson. Age of Person injured—21. Capacity in which employed—Porter acting as Number-taker. Number of booked working hours per diem—10. How long on duty at time of Accident—7½ hours. Nature of Injury—Left foot crushed.</p> <p>Description of Accident—At 3 p.m., during shunting operations, two waggons were loose-shunted into the long road, and while they were running into that road Coulson jumped on to the step fixed at the front end of the leading vehicle and afterwards climbed upon the buffer to look inside the vehicle. After doing so, and when about to descend to the ground, he placed his left foot on the buffer-spindle of the vehicle which immediately afterwards came in contact with another vehicle at rest, with the result that the buffer was compressed a little and his foot was slightly crushed between the buffer head and socket and so injured as to cause him to be off duty two days.</p>	<p>There was no necessity for Coulson to get upon the vehicle in motion, and he should have waited until it came to rest. The mishap was entirely due to his own want of caution.</p> <p>J. J. H.</p>	
	<p>Date of Accident—24th July, 1902. Place at which Accident happened—Victoria Dock, Hull. Name of Person killed—Arthur Edmund Stilborn. Age of Person killed—20. Capacity in which employed—Casual Pulleyman acting as Horse</p>	<p>The dimensions of the bogies in question are as follows:—Length 8½ feet, breadth 7 feet, height above rail level 2 feet 9 inches, buffers 1 foot long and 8 inches by 6 inches thick. The</p>	<p>The practice of attaching the horse chains to the chain hooks of these bogies or to the draw bar hooks of waggons is one that is attended with considerable risk to the horse shunters</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
<p><b>NORTH EASTERN—</b> <i>cont.</i></p>	<p>Shunter. Number of booked working hours per diem—Irregular. How long on duty at time of Accident—2½ hours.</p> <p>Description of Accident—At about 7 a.m. on the morning in question, Stilborn was in charge of two horses which were drawing five empty bogies along what is known as the "alley" of No. 14 timber yard. The horse chain, which was fully six yards long, was as usual attached to the hook of the chains fixed in front of the leading bogie. When this bogie was approaching a waggon at rest, Stilborn called to his horses to stop. They obeyed his call and he went into the four-foot way to release the horse chain. To do so it was necessary for him to stoop down, and while in the act of doing so, with his back towards the horses, they suddenly started forward quickly and it then became necessary for him to walk quickly backwards to keep out of the way of the bogie. At the same time he was attempting to release his horse chain, but before he could do so he was crushed between the bogie and the bottom of the end of the waggon as the former was drawn underneath the latter, with the result that he was so injured that he died the following day.</p> <p>Date of Accident—4th August, 1902. Place at which Accident happened—Morpeth. Name of Person injured—John Storey. Age of Person injured—52. Capacity in which employed—Passenger guard. Number of booked working hours per diem—11. How long on duty at time of Accident—9 hours. Nature of Injury—Ribs injured.</p>	<p>bogies are used to convey planks and other pieces of timber from the vessels to the various timber yards, and when loaded, the timber overhangs the ends of the bogies several feet according to the length of the timber. At both ends the bogies are fitted with two side chains which are fixed in a ring, and attached to the ring there is a hook which when not in use trails on the ground. On both sides of the bogies at each end there are loops to which the horse chains could be attached, but this is not generally done. Instead of this, the horse chains, which are from 18 to 20 feet in length, are attached to the hooks of the chains in front of the bogies, and when waggons are being drawn, to the draw bar hooks of the waggons.</p> <p>In this case there was ample room for the horses to walk by the side of the line if the horse chain had been attached to the loop on the side of the leading bogie, in which case the accident would not have happened, and I consider that it was chiefly due to the horse shunters having been permitted to perform the horse shunting in such an unsatisfactory manner. It was well known to those in authority that these men always worked alone, and that whilst engaged releasing the horse chains they had not proper control over their horses.</p> <p>At the same time the excessive hours the deceased man worked on the three days prior to the date of the accident probably contributed to it, as he had worked on these days for 17, 16½ and 19½ hours respectively (with reasonable intervals for meals) and on the morning of the accident he resumed duty with only an interval of 4½ hours for rest.</p> <p>Under these circumstances he could not be so free in his movements as was desirable while engaged in such dangerous operations. In addition, Stilborn was somewhat inexperienced with the work as he had only been a horse shunter one month, and had not been supplied with a copy of the Company's rules and regulations in accordance with Rule 17 (a).</p> <p>As Storey was unacquainted with the yard, porter J. Armstrong conducted the operations necessary to enable the driver to take his engine round the train, after which he informed Storey that as soon as the disc signal (fixed a few yards north</p>	<p>who have to go into the four-foot way to release the chain while the bogies or waggons are being brought up to other bogies or waggons in the same road, as in this case.</p> <p>The Company forbade this practice at Newcastle Quay in 1897 with good results, and issued instructions to their horse shunters to attach the chains to the horse hooks fitted on the sides of the waggons whenever practicable. It is to be regretted that similar instructions were not issued to the horse shunters at Hull, and it is to be hoped that now that their attention has been drawn to the matter they will do so, or take some other steps to prevent what is practically "fly-shunting" with shunt horses.</p> <p>Arrangements might with advantage be made for horse shunters, especially those in charge of two horses, to have some person to assist them with the horse shunting, similar to the arrangements at Newcastle Quay. In addition, a copy of the Company's rules and regulations should be given to the horse shunters in accordance with Clearing House Rule 17 (a).</p> <p style="text-align: right;">J. J. H.</p> <p>The independent line is about 370 yards in length and is used both as a siding and a running line between Morpeth Station and Morpeth crossing signal cabin, and for future safety it is desirable that when waggons are placed on this line to stand for an indefinite</p>

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— <i>cont.</i>	<p><b>Description of Accident</b>—In this case Storey worked the 9.15 p.m. passenger train from Newcastle to Morpeth, and after arrival the empty train was shunted into the North British platform line. The engine was then taken along the adjoining line and attached to the opposite end of the train preparatory to working the 10.58 p.m. passenger train from Morpeth to Newcastle. This train started from the up main line platform, and to get it there it was necessary for it to be propelled along the independent line until the engine was over the points leading from that line to the up main line, and while this was being done the leading vehicle (a brake van) in which Storey was riding collided with some waggons standing on the independent line. Storey could not in the darkness see the standing waggons until it was too late to prevent the collision. He attempted to bring the train to rest with the Westinghouse brake and tried to apply it by turning the tap in his brake van, but while so engaged he was by the force of the collision thrown against the wheel of the hand brake and had his ribs so injured as to cause him to be off duty 14 days.</p>	<p>of where his brake van then stood) was taken off he could signal his driver to set the train back. Storey did as requested with the result stated. When Armstrong left Storey he went to assist on the up platform which was crowded with passengers, it being "Bank Holiday," but he was not aware that there were any waggons standing on the independent line. Signalman F. Lambert who went on duty at 10 p.m. was informed about the standing waggons, but he did not even know where they stood. However, he states that as a precaution, after taking off the disc signal for the train to be set back along the independent line, he stood at his cabin window and exhibited a green light. On the other hand, fireman D. Donald states that he looked towards the signal cabin and is confident that Lambert did not exhibit a green light. Further, the evidence is conflicting as to how long before the collision happened Lambert warned Storey that his train was approaching the standing waggons by calling "look-out." In my opinion, if a red light had been placed upon the rear vehicle of those at rest on the independent line, or had porter J. Armstrong been informed of their position the accident would have been prevented, and I attribute the mishap to the unsatisfactory system of working.</p>	<p>period in the dark as in this case, the person who places them there should be held responsible for a red light being placed upon the rear vehicle. This is very necessary as in some cases the signalman going off duty at 10 p.m. has forgotten to inform the signalman relieving him that there were waggons standing on the independent line.</p> <p>J. J. H.</p>
	<p><b>Date of Accident</b>—18th August, 1902. <b>Place at which Accident happened</b>—Ferryhill. <b>Name of Person injured</b>—Jabez Hubbard. <b>Age of Person injured</b>—55. <b>Capacity in which employed</b>—Goods guard. <b>Number of booked working hours per diem</b>—10½. <b>How long on duty at time of Accident</b>—9h. 10m. <b>Nature of Injury</b>—Left knee injured.</p> <p><b>Description of Accident</b>—Hubbard was working with the 10.25 p.m. up goods train from Sunderland to Darlington which arrived at Ferryhill at 11.15 p.m., and during shunting operations there, while he was running alongside some waggons in motion for uncoupling purposes his left foot slipped off an exposed point rod causing him to fall and so injure his left knee that he was still off duty when the inquiry was made.</p>	<p>At and near the spot where this accident happened there are three point rods badly exposed, and further northwards all the others are similarly exposed except two which are covered by metal casings which are from 4 to 5 inches higher than the ballast. All these obstructions are in the path it is necessary for the men to take during shunting operations. The three rods mentioned are a few yards distant from each other, and Hubbard slipped on the centre one which he was unable to see as it was necessary for him to fix his whole attention upon the coupling which he was attempting to take off with his coupling pole, and he had not succeeded in getting the coupling off when he fell. The accident was due to the point rod on which Hubbard slipped and fell being exposed.</p>	<p>The shunting is heavy at this place, and for future safety I consider that all the point rods crossing the paths that the men have to use should be cranked to the ballast and protected with side timbers.</p> <p>J. J. H.</p>
	<p><b>Date of Accident</b>—25th August, 1902. <b>Place at which Accident happened</b>—Morpeth. <b>Name of Person killed</b>—Thomas Pattison Carr. <b>Age of</b></p>	<p>The accident appears to have been due to misadventure.</p> <p>J. J. H.</p>	

## REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—continued.

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH EASTERN— cont.	<p>Person killed—52. Capacity in which employed—Goods foreman. Number of booked working hours per diem—11½. How long on duty at time of Accident—7 hours.</p> <p>Description of Accident—In this case a North British Company's goods train had, as usual, been marshalled in the sidings west of the down main line under the superintendence of the deceased, after which the train was placed in the loop line, and the engine was taken over the points to get to the opposite end of the train by running along the North British Platform line adjoining. The deceased called to the signalman to set the points for this to be done, and after seeing them set in proper position, he waved the driver forward, and then crossed the down main line and stood for a few moments between that line and the up main line to give some instructions to goods guard G. Carter, who was in charge of an up goods train which had just arrived. While speaking to Carter he observed a down train approaching, and he hurriedly re-crossed the down main line and stepped in the four-foot way of the North British Platform line—in front of the North British Company's engine, the driver of which he had just previously signalled forward, with the result that he was knocked down by the engine and instantly killed.</p> <p>Date of Accident—2nd September, 1902. Place at which Accident happened—Hull Monkey Bridge Marshalling Sidings. Name of Person injured—G. A. Norman. Age of Person injured—23. Capacity in which employed—Fireman. Number of booked working hours per diem—10. How long on duty at time of Accident—15 minutes. Nature of Injury—Left shoulder bruised.</p> <p>Description of Accident—Norman and his mate, W. S. Goforth, were sent from Dairy Coates engine shed for the purpose of relieving other men who were working the "Monkey Bridge" pilot engine, No. 1707. On their approaching the engine, which was working to and from a siding or shunting neck, they walked in the six-foot space between the latter and an adjoining short storage siding. Just as they arrived at the engine Norman stumbled over the angle of a point rod (by which certain points are worked from the signal cabin), and falling sideways on to the side rod of the engine he received injury as stated above.</p>	<p>It was dark at the time, and, although there are lamps fixed close by, owing to the dark shadow caused by waggons on one side and the engine on the other, the point rod could not then be clearly seen.</p> <p>I am of opinion that in this case the mishap was purely accidental.</p> <p>A. F.</p>	
NORTH STAFFORDSHIRE.	<p>Date of Accident—8th July, 1902. Place at which Accident happened—Hanley. Name of Person injured—Charles Elks. Age of Person injured—46. Capacity in which employed—Carman. Number of booked working hours per diem—12. How long on duty at time of Accident—5½ hours. Nature of Injury—Left leg crushed; off duty 18 days.</p> <p>Description of Accident—Elks is in the service of the London and North-Western Company. At about 12 noon on the day in ques-</p>	<p>Although the evidence was conflicting as to what warning was given before the waggons were pushed into No. 2 siding, as Elks was only driving his dray along the roadway where there was ample space for him to keep it and the contents well clear of No. 2 siding, there was no necessity to warn him. This he admits by saying that he fully expected that his dray and the con-</p>	

REPORTS OF SUB-INSPECTORS OF RAILWAYS ON ACCIDENTS—*continued.*

Railway.	Particulars of Accident, &c.	Conclusions of the Sub-Inspector as to the causes of the Accident.	Recommendations.
NORTH STAFFORD-SHIRE— <i>cont.</i>	<p>tion he brought a dray to the station loaded with boxes which were required in an empty waggon in No. 2 siding. To get to the waggon he took his dray round by the crossing at the south end of No. 3 siding and then along the roadway between the two sidings mentioned, where the space is eight yards. While driving his horse he stood upon the shaft of the dray, but before reaching the empty waggon it was necessary for him to bring his horse to a stand until another horse was moved which was attached to a cart which was being loaded from a waggon standing in No. 3 siding. Before the carter in charge of the latter horse had time to move it to allow Elks to take his dray past, some waggons were pushed into No. 2 siding. The leading vehicle passed the boxes loaded on the dray in safety, but the second vehicle caught them, causing the dray to be turned round and Elks' left leg to be crushed between the boxes and the side of one of the waggons, with the result stated above.</p> <p>Date of Accident—28th August, 1902. Place at which Accident happened—Stoke Goods Warehouse. Name of Person injured—William Minshall. Age of Person injured—14. Capacity in which employed—Checker. Number of booked working hours per diem—12. How long on duty at time of Accident—8 hours and 40 minutes. Nature of Injury—Great toe on left foot crushed.</p> <p>Description of Accident—It is Minshall's duty to assist in the checking of goods and to label outgoing waggons.</p> <p>It is the practice at Stoke not to un-sheet the waggons until after they have been placed alongside the loading bank in the goods warehouse. Then after the waggons have been placed for unloading, the sheet strings are untied on the "bank" side and thrown over the "off" side of the waggons, after which and during the time of unloading the sheetmen usually detach and remove the sheets.</p> <p>On the morning in question, after a certain waggon had been unloaded, it was decided to reload it with outward goods, and the acting shed foreman, W. Fletcher, made arrangements with the capstanman to move the waggon a short distance along the loading bank to where the outward goods were stored, but just previous to the waggon being moved, Minshall went to the off side to attach a label. To do that it was necessary for him to stand on the sheet which (not knowing the waggon was likely to be moved), the sheet-ers had not detached and removed, and whilst he was fixing the label, the waggon was set in motion and of course the sheet was pulled with it. To avoid falling, Minshall took hold of the top side of the waggon, and whilst hanging to that, the great toe of his left foot was crushed between the overlapping part of the wheel and the stone paving.</p>	<p>tents were well clear of the vehicles being pushed into the No. 2 siding. The mishap was therefore due to Elks' own want of judgment.</p> <p>J. J. H.</p> <p>Minshall admits hearing the warning call before the waggon was set in motion, but not having noticed that the sheet on which he was standing had not been detached from the waggon, he had no reason to suppose it would be moved, and so thought he might follow the waggon and fix the label in safety.</p> <p>The sheet-ers were engaged at another part of the warehouse and had no knowledge that the waggon was to be moved, therefore, I do not think they can be blamed.</p> <p>The acting foreman, W. Fletcher, was responsible for the movement of the waggon, and as he was fully acquainted with the practice mentioned, having given a signal for that to be done, without first knowing the condition of the sheet, he, in my opinion, is chiefly to blame for the mishap which fortunately was not so serious as it might have been.</p> <p>A. F.</p>	

*Note.*—In the case of an Accident that occurred on the 26th September to loader T. Beauchamp, at Lawley Street, Birmingham, on the Midland Railway, the Inquiry has had to be postponed owing to the continued illness of the injured man. The Sub-Inspector's Report cannot therefore be included in these Returns.

For other Reports of Inquiries into Accidents which have occurred during the nine months, see [Cd. 1232 and Cd. 1308].





